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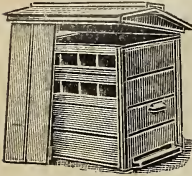
# ADVANCED BEE - CULTURE;

## Its Methods and Management.

I am now engaged in writing and printing a book that is to bear the above title. It is to take the place of my other book, *The Production of Comb Honey*, which will not be re-published. Although the new book will contain at least five or six times as much matter as *The Production of Comb Honey*, yet the price will be only 50 cts. The book is already partly printed, and will probably be out some time in April or May. If any of the friends would like to "help me along" in meeting the expenses of getting out the book, they can do so by sending their orders in advance. Such orders will be most thankfully received, and filled the very day the book is out. I will send the REVIEW one year and the book for \$1.25. The REVIEW will be sent on receipt of order (I have plenty of back numbers to send it from the beginning of the year), and the book as soon as it is out. Stamps taken, either U. S. or Canadian. 10tfdb

W. Z. HUTCHINSON, Flint, Mich.

☞ In responding to this advertisement mention GLEANINGS.



### DOWN THEY GO!

For the next few days \$1.25 will buy our 8-frame chaff hive, with 2 T supers and 8 heavy top-bar brood-frames.

Send for PRICE LIST.

ROE & KIRKPATRICK,  
Union City, Ind.

☞ In responding to this advertisement mention GLEANINGS.

### DON'T READ THIS.

For if you do you will send to R. E. Smith, Tilbury Center, Can., for your tins. I wish to say that we are making all kinds of tinware used by the bee-keeper. Honey-extractors of all sizes to suit Jones and L. frames, or to order. 63-lb. square tins. Also a large number of honey-pails, holding from 1 to 10 lbs., with bail. We are prepared to furnish bee-keepers of Canada with

#### ALL STYLES OF HONEY-CANS

this season of 1891. No. 1 tin used in all these goods. Send for price list of 1891, now out.

R. E. SMITH, Tilbury Center, Can.

☞ In responding to this advertisement mention GLEANINGS.

### OAK HILL POULTRY FARM.



The home of the best general-purpose fowl for the farmers and the fanciers, the Barred PLYMOUTH ROCKS.

This year, as in the past, I will devote my five large coops to Plymouth Rocks only, and try to fill all orders promptly from first class stock.

Eggs at \$1.50 per 13, and \$1.00 for each additional setting in the same shipment. 6d

E. J. KENNEDY, Troy, Pa.

☞ In responding to this advertisement mention GLEANINGS.

## Cash for Beeswax!

Will pay 25c per lb. cash, or 28c in trade for any quantity of good, fair, average beeswax, delivered at our R. R. station. The same will be sold to those who wish to purchase, at 31c per lb., or 35c for best selected wax.

Unless you put your name on the box, and notify us by mail of amount sent, I can not hold myself responsible for mistakes. It will not pay as a general thing to send wax by express.

A. I. ROOT, Medina, Ohio.

### SILVERHULL BUCKWHEAT

for seed. Free from all foul seeds. This buckwheat will outyield the Japanese.

#### YIELDED FORTY BUSHELS PER ACRE HERE

the last season. This buckwheat is profitable to sow for bees alone, to say nothing about the crop. Delivered on board cars here, in new grain-bags, at \$1.00 per bushel. No order taken for less than two bushels. EZRA G. SMITH, Manchester, Ontario Co., N. Y.

☞ In responding to this advertisement mention GLEANINGS.

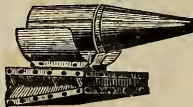
### HAVE YOU READ MY

Ad. on **Inside Back Cover** of *Gleanings*, Feb. 1st? Also my ad. on **Page 117**, Feb. 15th *Gleanings*, about my **New Potatoes!** If not, do so at once. W. Z. Hutchinson, on page 45 of the Feb. Review, says, "They would almost pass for a **Sweet Potato.**" If you intend to try them it is necessary for you to **order soon**, as they would not go half way round to the readers of *Gleanings*. Potatoes will be sent the first week in April. Safe arrival guaranteed. 5tfdb

Jacob T. Timpe, Grand Ledge, Mich.

☞ In responding to this advertisement mention GLEANINGS.

### ☞ BEST ON EARTH ☞



ELEVEN YEARS  
WITHOUT A  
PARALLEL, AND  
THE STAND-  
ARD IN EVERY  
CIVILIZED  
COUNTRY.



Bingham & Hetherington  
Patent Uncapping-Knife,

Standard Size.

Bingham's Patent Smokers,

Six Sizes and Prices.

Doctor Smoker,	3 1/2 in.,	postpaid	...\$2.00
Conqueror "	3 "	"	... 1.75
Large "	2 1/2 "	"	... 1.50
Extra (wide shield)	2 "	"	... 1.25
Plain (narrow)	2 "	"	... 1.00
Little Wonder,	1 1/2 "	"	... 65
Uncapping Knife.....			... 1.15

Sent promptly on receipt of price. To sell again, send for dozen and half-dozen rates.

Milledgeville, Ill., March 8, 1890.

SIRS:—Smokers received to-day, and count correctly. Am ready for orders. If others feel as I do your trade will boom. Truly, F. A. SNELL.

Vermillion, S. Dak., Feb. 17, 1890.

SIRS:—I consider your smokers the best made for any purpose. I have had 15 years' experience with 300 or 400 swarms of bees, and know whereof I speak. Very truly, R. A. MORGAN.

Sarahsville, Ohio, March 12, 1890.

SIRS:—The smoker I have has done good service since 1883. Yours truly, DANIEL BROTHERS.

Send for descriptive circular and testimonials to 10tfdb BINGHAM & HETHERINGTON, Abronia, Mich.

☞ In responding to this advertisement mention GLEANINGS.

## Wants or Exchange Department.

**W**ILL exchange 2 tons of Lake Erie fish guano, best corn phosphate in the world, for a good incubator, eggs for hatching, blooded sheep, or hogs.  
6d A. B. BURKHOLDER, Butler, O.

**W**ANTED.—For 1891, as learners, two brisk young men desirous of perfecting themselves in modern apiculture. Must be strictly temperate, and give good reference. S. I. FREEBORN, Ithaca, Wis.  
4-5-6d

**W**ANTED.—To exchange bees for a tubular boiler from 4 to 8 horse power. Correspondence solicited. D. S. BASSETT,  
4-tfdb Farnumsville, Worcester Co., Mass.

**W**ANTED.—To exchange 1 lb. thin Vandervort fdn. for 2 of wax. Samples and testimonials free.  
2-7db C. W. DAYTON, Clinton, Wis.

**W**ANTED.—To exchange apiary of 150 colonies of bees. Will take any kind of farm stock, goods or groceries. ANTHONY OPP, Helena, Ark.

**W**ANTED.—To correspond with parties having potatoes, onions, apples, and honey for sale. Prompt attention given to correspondence. Consignments solicited. Prompt returns made.  
EARLE CLICKENGER, 121 So. 4th St., Columbus, O.

**W**ANTED.—To exchange pure Brown Leghorn eggs for tested Italian queens. GEER BROS.,  
5-tfdb St. Marys, Mo.

**W**ANTED.—To correspond with parties who wish to improve their poultry. Fair dealing.  
5-tfdb D. F. LASHIER, Hooper, Broome Co., N. Y.

**W**ANTED.—An apiarist to take 1/2 interest in an apiary of 100 colonies. Write for particulars.  
5d J. C. FRISBEE, 172 Maple St., Denver, Col.

**W**ANTED.—To exchange bees or this season's honey for Pekin ducks and Monroe Seedling potatoes. Address H. O. MCELHANY,  
5d Cedar Rapids, Linn Co., Ia.

**W**ANTED.—To exchange McLaughlin type writer, worth \$9, for B. Spanish or W. C. B. Polish chicks, or eggs from standard varieties. A. N. RHODES,  
New Castle, Ind.

**W**ANTED.—To exchange 4 acres of rich level land partly improved. Good dwe ling; 3 miles from depot.  
6d N. E. DOANE,  
Breckenridge, Gratiot Co., Mich.

**W**ANTED.—To exchange fruit trees and plants now, bees and queens in May and June, honey from crop of 1891, for bee hives and fixtures.  
6tfdb Address JOHN W. MARTIN,  
Greenwood Depot, Alb. Co., Va.

**W**ILL exchange plum, pear, peach, cherry, and quince trees, for eggs of pure-bred poultry.  
6d A. B. BURKHOLDER, Butler, O.

**W**ANTED.—To exchange a 50-in. Columbia tricycle, ball bearings all around, good as new, a 5x8 view camera and outfit; a 1/2 size C. C. Harrison lens; a World type-writer; for small engine and boiler. Barnes saw, or offers. W. H. BUTLER,  
6d Clifford, Ind.

**W**ANTED.—To exchange bees in 10-frame Langstroth hives at \$5.00 per colony, for foundation at market price.  
6-7d A. C. BEEBEE,  
Lochiel, Benton Co., Ind.

**W**ANTED.—To exchange two new 7x10 printing presses, with type, etc. Would sell cheap to make room for larger press; would take Barnes saw or supplies. MODEL STAMP WORKS,  
6d Shenandoah, Iowa.

**W**ANTED.—To exchange a good double-barrel, 12-gauge, breech-loading shotgun, weight 9 lbs., cost \$24.00, loading tools, cartridge-belt, complete, for Barnes foot-power saw, Heddon new hives, divisible brood-chamber, or offers.  
6d EZRA G. SMITH, Manchester, N. Y.

**W**ANTED.—To exchange bees for young horse.  
6-7d A. C. WALDRON, Buffalo, Minn.

**W**ANTED.—To exchange prize-winning Brown Leghorn eggs—\$1 per 15—for flowers, seed, or offers. 15d MRS. ELLA LAWS, Lavaca, Ark.

**W**ANTED.—To exchange agricultural machinery and implements for bees and comb foundation. Address, stating what you want.  
6d LOWRY JOHNSON, Masontown, Fayette Co., Pa.

**W**ANTED.—To exchange a saw, with countershaft, belt, etc., and an Excelsior force-pump.  
6-7d L. L. ESENHOWER, Reading, Pa.


**W**ANTED.—Pure Italian queens, sections, nursery stock, or offers, for pure P. Rock eggs or Quinby hive-corner clasps. L. C. AXTELL, Roseville, Ill.  
6tfdb

**W**ANTED.—A Safety bicycle and Barnes combined saw. Write for list of what I have to exchange for same. 6d F. H. MCFARLAND, St. Albans, Vt.

**W**HAT are we offered for a World type-writer, new, double case, cost \$17? J. B. ALEXANDER,  
6d Hartford City, Ind.

**W**ANTED.—To exchange Root's Dove'd hives, sections, fdn., for Japanese buckwheat or offers.  
8d A. B. BURKHOLDER, Butler, O.

**W**ANTED.—To exchange some excellent offers for bees by the pound, and foundation.  
6-7d L. L. ESENHOWER, Reading, Pa.




### BEES FOR SALE.

**COLONIES, NUCLEI, and QUEENS**

at living rates. Send for circular and price list to

**C. C. VAUGHN,**  
Columbia, Tenn.

6tfdb



*In responding to this advertisement mention GLEANINGS.*

**FOR SALE** (for 1891) cheap, for cash. Italian Bees and Queens. Address  
ORTO KLEINOW, Apiarist,  
6-7d 150 Military Ave., Detroit, Mich.

**READY TO MAIL, TESTED ITALIAN QUEENS.**  
Reared last Aug., \$1.75; after March, \$1.50. Untested, from Doolittle's Select Mother, raised by his method, \$1.00. Reduction on 3 or more. Orders booked now; pay when queens are wanted. 6-7-8d  
**JOHN B. CASE, Port Orange, Vol. Co., Fla.**  
*In responding to this advertisement mention GLEANINGS.*

**FOR SALE.**  
My Carniolan and queen-raising apiaries, with the agency of the Chicago Bee-Keepers' Supply Co. at Topeka, with a large trade established. Reason of change to take charge of our Chicago depot.  
**J. B. KLINE, Topeka, Kan.**  
In writing advertisers please mention this paper.

Have you seen Evangelist Wolfe's new paper? Do you want a bright, lively, and out-spoken Gospel paper, published in the Cherokee Indian Nation? Subscribe for "John 3:16." Only 20 cts per year. Specimen copies free. Address "John 3:16" Company, Vinita, Cherokee Nation, Ind. Ter.  
6-7d  
*In responding to this advertisement mention GLEANINGS.*

**Printing,** Note Heads, Bill Heads, Envelopes, Business Cards 250 for \$1.00  
Post Paid. Good honest work and paper. 50 Ladies Cards in Steel Plate Script 25 c. No Samples. 12 Years in Business. Send Copy and dollar to  
**BURTON L. SAGE, New Haven, Conn.**

## HONEY COLUMN.

### CITY MARKETS.

**SAN FRANCISCO.**—*Honey.*—Since the last rains, the outlook for the coming crop is more flattering. However, we do not expect to see as large a crop as in the previous year. We now quote: Extracted honey, 5 $\frac{3}{4}$ @6c. Comb, 2-lb. frames, 9@13; 1-lb., 10@15. *Beeswax*, 23@24.

SCHACHT, LEMCKE & STEINER,  
Feb. 24 San Francisco, Cal.

**ALBANY.**—*Honey.*—Comb honey selling quite freely, and stock on hand getting quite small. Have received one consignment of comb honey since last issue. The demand for dark extracted honey is good. There is not quite so much call for light. *Beeswax* very scarce. We quote clover, 15@16c; buckwheat, 12@13. Extracted light, 8@9; dark, 7@8.

CHAS. McCULLOCH & Co.,  
Mar. 10 Albany, N. Y.

**NEW YORK.**—*Honey.*—Our market is bare of comb honey, and but little demand for any. California extracted is in good demand at from 6 $\frac{3}{4}$ @7 $\frac{1}{4}$ c a lb., and the market is well supplied with same. Extracted buckwheat is selling at from 7@7 $\frac{1}{4}$ c a lb., and stock scarce. No Southern at present. *Beeswax*, 25@27c. HILDRETH BROS. & SEGELKFN,  
Feb. 26 New York.

**DETROIT.**—*Honey.*—Comb honey is quoted at 14@15 cts.; sales slow. Extracted, 7@8c. *Beeswax* firm at 27@28c.

Bell Branch, Mich., Feb. 19. M. H. HUNT.

**ST. LOUIS.**—*Honey.* Market unchanged; have had several inquiries for large quantities, say 15,000 lbs., extracted and strained. Prime *beeswax*, 27c.

D. G. TUTT GRO. CO.,  
Mar. 9 St. Louis, Mo.

**MILWAUKEE.**—*Honey.*—The demand for honey is very moderate; supply of all kinds fair. One-pound sections, best, 18@19; good, 17@18; fair, 15@16; dark or old, 10@12. Extracted white, in barrels and half-barrels, 8 $\frac{1}{2}$ @9; same, in tin cans, 8 $\frac{1}{2}$ @9; dark, in barrels and kegs, 6 $\frac{1}{2}$ @7 $\frac{1}{2}$ . *Beeswax* wanted at 2@30c.

A. V. BISHOP,  
March 6 Milwaukee, Wis.

**CHICAGO.**—*Honey.*—Stock is not large, and for the best white comb in desirable shape there is a steady demand at 17@19c; any thing 6d in appearance is slow at one to two cents less. Extracted, steady at 7@8. *Beeswax* 27c. It is time now that all comb honey be on sale.

R. A. BURNETT,  
March 8 161 So. Water St., Chicago, Ill.

**FOR SALE.**—600 lbs. white-clover and basswood honey, in 6 $\frac{1}{2}$ -lb. cans; 10c, f. o. b.

F. G. FENTON,  
Box 221, Bluffton, O.

**FOR SALE.**—"Choice orange-blossom" extracted honey in 60-lb. tin cans, or kegs holding 14 to 15 gallons. Price \$1.25 per gallon, f. o. b. cars here.

ARTHUR F. BROWN,  
6 9db Huntington, Putnam Co., Fla.

**FOR SALE.**—1200 lbs. extracted white-clover honey in barrels or 6 $\frac{1}{2}$ -lb. cans, as desired.

OLIVER FOSTER,  
12-tfdb. Mt. Vernon, In.

**FOR SALE.**—120 lbs. choice clover honey, in 20 lb. cases.

F. H. McFARLAND, St. Albans, Vt.

## Bee - Keepers' \* Supplies.

We are prepared to furnish bee-keepers with supplies promptly and at lowest rates. Estimates gladly furnished, and correspondence solicited. Our goods are all first class in quality and workmanship. *Catalogue sent free.* Reference, First National Bank, Sterling, Ill. Address

WM McCUNE & Co.,  
Sterling, Illinois.

21-20db

In responding to this advertisement mention GLEANINGS.

## 5-BANDED GOLDEN ITALIANS

Beauties! The best workers we ever saw. Work on red clover. Very gentle. Drones  $\frac{1}{2}$  to  $\frac{3}{4}$  yellow. Won 1st Premium at Ill. State Fair in 1890. Nearly 300 booked for 1891. Warranted Queens, May, \$1.25, 6 for \$6.00; after June 1st \$1.00, 6 for \$5.00. Special discount for large orders as to dealers. Have your order booked now in order to get them when wanted. Satisfaction guaranteed. No foul brood. Select Barred Plymouth Rock Eggs, \$1 per 13. Good reference given.

Itfdb S. F. & I. TREGO, Swedona, Ill.  
In responding to this advertisement mention GLEANINGS.

## QUEENS, QUEENS. GOLDEN CARNIOLAN AND ITALIANS.

Price List Free.  
H. ALLEY, Wenham, Essex Co., Mass.  
Please mention this paper. 6trd

## Bees & Supplies for Iowa.

Send for my supplement for 1891, now ready (no new catalogue). Say whether you have my catalogue dated 18-9 and 1891. Address Oliver Foster,  
5-tfdb Mt. Vernon, Linn Co., Iowa.

-34d Please mention this paper.

# BEESWAX

**FOR SALE.**—Crude and refined. We have constantly in stock large quantities of Beeswax, and supply the prominent manufacturers of comb foundation throughout the country. We guarantee every pound of Beeswax purchased from us absolutely pure. Write for our prices, stating quantity wanted.

ECKERMANN & WILL,  
Bleachers, Refiners, and Importers of Beeswax.  
5-16db Syracuse, N. Y.

In responding to this advertisement mention GLEANINGS.

## NEW FACTORY.

No. 1 Sections, \$3.50; No. 2, \$2.75. Fine Comb Foundation a specialty.

M. S. ROOF, 520 East Broadway,  
6-17db Council Bluffs, Ia.

In responding to this advertisement mention GLEANINGS.

## A PAYING CROP.

Grow Popping-Corn. We bought 50 carloads last season, paying from 2 $\frac{1}{2}$  to 3 $\frac{1}{2}$  cts. per pound on the ear. 6-7-8,9d

## Will Want 100 Carloads Next Season.

Write us, and will advise you as to best yielding variety to plant and pop.

H. R. WRIGHT, 326 Broadway,  
Albany, N. Y.

Reference: Albany County Bank.  
Please mention this paper.

**I WILL GIVE 10 PER CENT DI COUNT** on all orders received during March. Don't wait until the busy season before you order your **ALBINO** queens, for it sometimes causes delay. 6d

A. L. KILDOW, Sheffield, Ill.  
Please mention this paper.

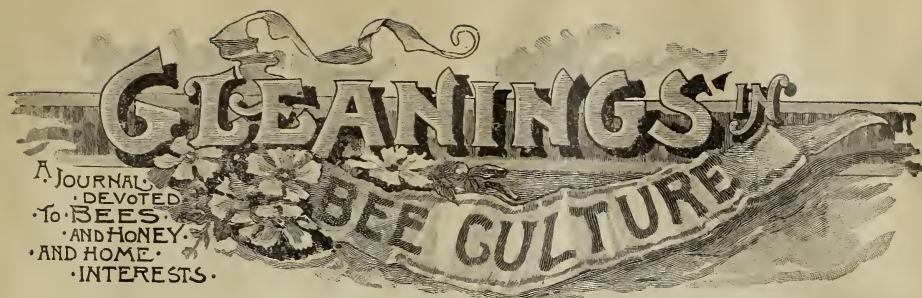
\$5.00 IN MAY, AND \$4.50 IN JUNE,

—WILL BUY—

## A Strong Full Colony of Pure Italian Bees

in Root's new Dovetailed or the old Simplicity hive, as you prefer. Each to contain a fine tested queen and plenty of bees and brood. Everything first-class. Pure Japanese Buckwheat, per bu., \$1;  $\frac{1}{2}$  bu., 60c;  $\frac{3}{4}$  bu., 35c, bag included. Scotch Collie Pups, \$4 each.

N. A. KNAPP, Rochester, Lorain Co., O.



Published by A. I. Root, Medina, O.

Vol. XIX.

MAR. 15, 1891.

No. 6.

## STRAY STRAWS

FROM DR. C. C. MILLER.

DON'T YOU LONG to see the bees at work?

THE TRADE-MARK isn't booming so much.

THE *Review* wants no trade-mark. Right, Hutch.!

ISN'T THAT a neat engraving at the top of the page?

HON. EUGENE SECOR is re-elected President of the Iowa State Horticultural Society.

HOW TO GET a stand of melilot might be a good subject for experiment at Michigan Agricultural College.

J. H. LARRABEE, a live bee-keeper from down east, has been chosen to help Prof. Cook in his apicultural experiments.

THE CALIFORNIA BEE-KEEPER is out—Vol. I., No. 1. It *ought* to live—gotten up in fine shape, and the salutatory has the right ring to it.

"STORIFYING" is what our English cousins think we ought to say instead of "tiering." I'm afraid they're right. "Piling" might do.

"NET WEIGHT ONLY" marked on the end of the case, says Henry Segelkin (GLEANINGS, p. 133). Please tell us why only net, and why on the end.

A NEW SMOKER, by A. G. Hill. Looks a trifle like a Bingham upside down. Has the advantage that it is always right side up, whether in use or idle.

PROMINENCE is to be given just now at Michigan Agricultural College to experiments in wintering, improvement in bees, and planting for honey.

OLD KEROSENE-CANS, says the *California Bee-keeper*, should *not* be cleaned out for honey. Just leave them dirty, and then fill them up with—kerosene.

"If God has made this world so fair,

Where sin and death abound.

How beautiful beyond compare

Must Paradise be found!"

AN EGG IN A CELL stands up straight the first day; second day at an angle of 45°; third day, it lies flat on the bottom of the cell. I learned that from Cowan's new book, "The Honey-Bee."

GEO. F. ROBBINS writes that he has tried it, and knows that enameled cloth is better than painted muslin for hive-covers. He puts the enamel side down and then paints it. It doesn't take one-third as much paint as muslin. Still, tin is good.

GOOD FOR WISCONSIN! Here's a resolution at their State convention: "That this Association send one delegate to the next American Bee-keepers' convention, and pay \$10 toward his expenses."

PUTTING BEST PREMIUMS on light honey, and little or nothing on dark honey, is scratching out our own eyes. So says Hasty in an article in *American Bee-keeper*. The whole article is excellent.

IN HAULING BEES or honey in day time, A. N. Draper tells in *A. B. K.* about loading up close to the hives, and, by means of a 40-foot rope, hauling the wagon some distance before hitching on regularly. Good idea.

LINDEN-TREES are among the most desirable for shade on the streets. Wouldn't it be a good plan to give them away to be planted on the village streets?—cheaper than to plant them on your own ground, just as good for you, and a kindness to your neighbor.

WHAT SECRETIVE PEOPLE those Michigan-ers are! There's Prof. Cook. It was darkly hinted that the government was doing something for the benefit of bee-keepers, and now Hutchinson brings out the fact that an experimental station is started, with Prof. Cook as chief engineer—a grand choice.

GERMAN BEE-KEEPERS are all stirred up over the matter of *heating* in winter. Its leading advocate, Pastor Weygandt, is considered by one party as an investigator to be placed alongside of Dzierzon, while the other party looks upon him as an idle dreamer. Details as to carrying out his plans are so indefinite that at present we can only wait to see what others do.

PROF. COOK says he wants suggestions as to subjects for experiment, also as to the manner of conducting experiments. Wouldn't it be a good plan to show him under with suggestions? Out of the lot he ought to get some that would be usable. With such men as Cook and Larrabee at the helm, it's a pretty sure thing that the experimental station will be in close touch with the rank and file of bee-keepers.

NO SWARMING will generally take place, says Dr. Tinker, in *A. B. K.*, "if at the beginning of a honey-flow we take an empty story with foundation starters in the frames, and put on the excluder, then a super of sections for storing, and the brood-chamber of any colony ready to work in the sections on top of all. The queen, of course, is to be put below the excluder in the new story." In 1889 I tried a number of colonies on this plan, but failed. Possibly the season was too poor.

"THE DOUBLE-COLONY" plan, as he calls it, is given by G. W. Demaree in *A. B. K.* In brief it is this: When a colony swarms, remove its

queen and put it in a brood-chamber on the old stand, with empty combs, except one comb of honey in which a queen-cell is grafted, on this a queen-excluder, and then a second story with the brood-frames and queen-cells, and then the surplus cases. The queens above will be destroyed before or after hatching, and the young queen below remains reigning. Won't the bees sometimes desert that single cell?

A NEW STUPEFIER is described in *Leipziger Bienenzeitung*. It is kept by supply-dealers, put up in little bottles, and, under the rather inappropriate name of "laughing-gas," consists of solid white crystals the size of coffee grains. Its fumes act like magic in immediately producing apparent death, and, as magically, life is restored, with no trace of effect, except that all memory of the past is gone, allowing change of queen, change of locality, uniting, etc. But disastrous results weeks, and even months afterward, are charged to its account.

GET READY for a big crop. If you're ready for it and it doesn't come, there's no great harm done. If you're not ready and it does come, then there is harm done. You'll get all in a stew right in the middle of harvest, and, instead of being just running over with gratitude for having such a big crop, you'll grumble at the supply-dealers because they don't start your supplies on the road about two hours before you mail your order, snap up your wife when she asks you to stop long enough for dinner, and make yourself such a nuisance generally that you'll want to get away from yourself. Get ready in time.

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## GENERAL CORRESPONDENCE.

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### BIOGRAPHICAL.

#### WHO IS RAMBLER?

The subject of this sketch was born in the town of Hartford, New York, Dec. 30, 1839. His grandfather came from the State of Massachusetts, and was one of those hardy Puritan pioneers who settled in that region near the close of the last century, and there carved comfortable homes from the virgin forest. He was a man of high native qualities and Yankee shrewdness, and from him John H. seems to have inherited his full share. As John was an only son he was given good educational opportunities, spending some time at a neighboring academy, and at the Fort Edward Collegiate Institute.

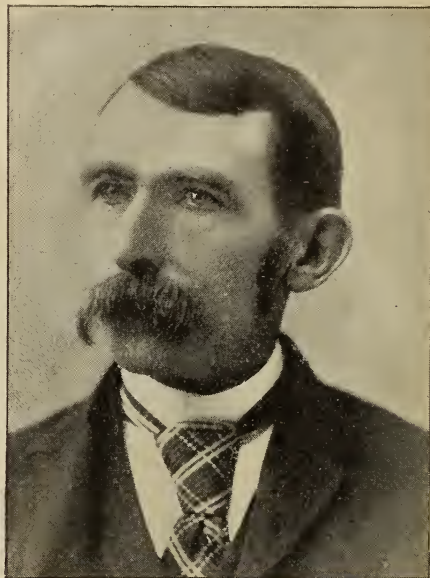
In 1868 he married Miss Libbie C. Edwards, who died in 1881, leaving no children. She was an estimable lady, and her death was a great loss to the community.

For many years Mr. Martin followed agricultural pursuits on his father's farm; but owing to a somewhat frail constitution, and the death of his wife, followed, in 1883, by the death of both his parents, he gave up the farm entirely; and bee culture, which had formerly been a side issue, was given all his time and attention.

His grandfather was the first to introduce into that section the Weeks patent hive, which at that time was a great improvement. By observing his grandfather's bees and methods, he early became interested in the bees, and hence he can hardly tell when his career as an apiarist began. As early as 1874 we find him with 55 colonies of bees, and a contributor to GLEANINGS. Since that time his apicultural career has been plainly indexed by his contributions to this paper. Since he has devoted all his time to the bees, it has been his method to keep from

200 to 300 colonies, running them for extracted honey, and doing all the work himself, except during the extracting season. At present his colonies are somewhat reduced, owing to the past successive poor seasons and bad winters. One season his crop was 16,000 lbs. of honey, and his average for the past 12 or 15 years has been about 7000 lbs. of extracted honey per year. Since the advent of the Heddon hive he has adopted it and its methods, and the chaff hives and outdoor wintering are being discarded.

Mr. Martin is a thorough student of the bee, as the many bee-books, old and new, and bound volumes of the bee-periodicals to be found in his bookcase, all show. He is also a superior workman in wood, and very ingenious in the invention and application of apiarian implements. The old homestead, where he now resides with kind friends, is a most beautiful spot. A broad turnpike leads up from the village, and for some distance there are, on either



THE RAMBLER.

side of the road, rows of thrifty basswoods, planted years ago by Mr. Martin's own hand. The house is a typical Eastern homestead, large and square and white, among venerable maples. Just beyond the house is the apiary with its high lattice fence and arbor of grapevines, while all around are the high hills and broad valleys of an excellent honey location.

In person Mr. Martin is quite tall and slender; there is not an ounce of spare flesh about him. In manner he is very modest and quiet, yet continually, through his eyes and in his words, one sees the humor of the man. He has great love of the quaint and humorous side of humanity, yet his humor never offends by its coarseness nor galls by its acidity. The series of articles written during the last two years, under the *nom de plume* "Rambler," has made him well known to all the readers of GLEANINGS. His method of combining the entertaining and the instructive in a manner to make it read by all is very characteristic.

Mr. Martin is a true Christian—very zealous in Christian work, and is a leading member and

deacon of the Congregational church of his town. He has long served as superintendent of the Sabbath-school; and in all matters pertaining to the spiritual and temporal welfare of the society his influence is felt, and is always on the side of right. JOHN H. LARRABEE.

Ag'l College, Mich., Jan., 1891.

[You have given us an excellent sketch of our "mutual friend," and your next to the last paragraph describes his personality almost exactly. Along on my bicycle tour I was frequently asked, "Who is that Rambler? I like his style, anyhow. But I want to know when that chap is coming around to visit me, so I can kind of 'sick up' you know." I was asked so many times about Rambler's identity, that, when I reached Lake George, I told Mr. Martin that it might not be a bad idea for him to let his real name be known, now that we had abundant evidence that his Rambles were appreciated and sought after by thousands of readers. Dr. Mason once said to me, "Ernest, I don't like this *nom-de-plume* business. Now, there is Rambler—a rather nice fellow, I judge, but I should like to know who he is; and when he gives me a 'blackboard exercise' I can give him another in return." Again, at the Albany convention, I think it was Charles Stewart who said to me, "Rambler is John H. Martin, is he not?"

"Yes, sir; how did you know?"

"He referred in one of his letters to his horse 'Nig,' and then I knew his identity at once."

Later.—Rambler is now going to California, and our readers will get the benefit of his western rambles. See his advertisement elsewhere.]  
E. R.

## CONDUCTIVITY OF HIVE-WALLS.

### EXPERIMENTS TO ASCERTAIN THE COMPARATIVE RESULTS BETWEEN THEM.

With a view to test the relative conductivity of different hive-walls I recently spent about a week in conducting experiments, and in making preparations for them.

The hives used were eight-frame Langstroth. No. 1 was a single-walled hive, made of scant  $\frac{1}{2}$ -inch lumber, sent to a neighbor as a sample hive from the factory of Mr. Heddon. Nos. 2 and 3 were half an inch wider, and one-eighth inch longer inside. Both of these were double walled, with  $1\frac{1}{4}$  inches for packing. The outer walls were plump  $\frac{3}{8}$  inch, ship-lapped, and lined with one thickness of building-paper to keep the wind from driving in through the joints. The inside walls were composed of picture-backing, say about  $\frac{1}{8}$  inch thick. In No. 2 the walls were firmly packed with cut straw, such as is used for fodder, and in No. 3 they were packed with granulated cork.

The bottoms were removed. In order to cause the cooling to take place as much as possible through the sides, each hive was covered with two cushions of wool tacked down with strips, the cushions weighing together 29 oz. There was a difference of only half an ounce in the weights of the three covers. To prevent the escape of heat as much as possible downward, similar cushions were fastened on the under side of the bottoms.

The first step was to verify my thermometers. I tested five instruments simultaneously, and, as it happened, the variations were so slight that, in experiments of this kind, they might be ignored. When every thing was ready, a tin pail containing  $7\frac{1}{2}$  lbs. of boiling water was set on each bottom-board, and the hives set over them. The thermometers were then inserted through slits in the quilts, so that the bulbs extended into the water. After the

mercury began to fall in each instrument, readings were recorded every half-hour for ten hours and thirty-five minutes. At the end of that time the temperatures, which at the first reading were 170, 171, and 175°, had dropped to 40, 48, and 58° respectively. It was noticeable, that at first the thermometer indicated higher in the single-walled hive than in either of the others, the heat in the latter being absorbed, I presume, in warming up the thicker walls.

It would, perhaps, be interesting to the reader to be able to examine the record of the readings in detail, but it would take up considerable space.

The outside temperature during the time the readings were taken averaged about 1° below 0. The following figures show the times of cooling down 100°:

Single-walled hive.....	330 min.
Straw-packed ".....	450 "
Cork-packed ".....	459 "

When this experiment was finished, I was not satisfied with the result. The double-walled hives did not stand close on the bottom-boards. I tried to fill up the cracks with oakum; but with a wind blowing, and a zero temperature, a very slight crack would vitiate the result; so I resolved upon another trial.

In the second experiment I fixed up the bottom-boards so that they would hold  $2\frac{1}{2}$  inches in depth of dry wood ashes, this being a very good non-conductor of heat. On these beds the hives were placed, and pressed down so that they were comparatively air-tight at the bottom. In this case the bulbs of the instruments were not placed in the water, but extended below the covers about two inches. During this experiment the outside temperature averaged about 10° above 0. The times of cooling down through 65° were as follows:

Single-walled hive.....	390 min.
Straw-packed ".....	460 "
Cork-packed ".....	475 "

In this experiment I found that, having the hives close together, affected their rate of cooling perceptibly, from which we may infer that, by placing hives close to each other in clamps, cellars, etc., they will keep warmer than when a greater distance apart. I thought, too, that, after all, keeping the bulbs in the water gave safer indications of the rate of cooling, so I determined to try it over again once more.

In the third experiment the hives were placed on beds of ashes as before; but I now packed soft wet snow around each hive, and crowded it up against the walls every hour to prevent air-spaces forming. The bulbs of the instruments were placed in the water as in the first case. This experiment I regard as the most reliable of the three. The times of cooling down 75° were as follows:

Single-walled hive.....	503 min.
Straw-packed ".....	570 "
Cork-packed ".....	675 "

When Count Rumford made his elaborate experiments on the conductivity of materials used in clothing, about 100 years ago, his method was this: "A mercurial thermometer was suspended in the axis of a cylindrical glass tube ending with a globe, in such a manner that the center of the bulb of the thermometer occupied the center of the globe; the space between the internal surface and the bulb was filled with the substance whose conductive power was to be determined. The instrument was then heated in boiling water, and afterward, being plunged into a freezing mixture of pounded ice and salt, the times of cooling 135° were noted."

My experiments were imperfect in this respect: Although the hives had been kept over night in the kitchen, there was a great difference between their temperature and the tem-

perature of the water placed in them. Owing to the difference in the material and thickness of the walls, the amount of heat absorbed by the walls in each case was not the same. If I could have placed the whole lot in a large oven, so as to heat all the materials to the same degree, as was done in Rumford's experiment, the result obtained would have been more reliable. As it is, however, the experiments give some indications of the comparative warmth of the different hive-walls.

S. CORNELL.

Lindsay, Ont., Feb. 20.

[Friend C., we are very much obliged indeed for the report of your valuable experiment. I wish, however, you had placed a similar pail of water right outdoors, without any protection; then we could have told just how much any sort of protection amounts to. Another thing, a colony of living bees giving off moisture from their respiration requires a covering somewhat different from that needed to preserve a vessel of hot water or a cake of ice; that is, the arrangement that would hold the heat longest for the brick or the ice would not be exactly what we need for a cluster of living bees. Your experiment demonstrates very clearly, however, the advantage and the protection that chaff and cut straw afford to a colony of bees during severe weather.]

### FIXED FRAMES.

AN ILLINOIS MAN DISCUSSES SOME OF THEIR FEATURES; HE CAN HANDLE THEM FASTER THAN THE UNFIXED FRAMES.

*Friend Root:*—The discussion that has appeared in GLEANINGS in the last six months in regard to the different frames used in hives should interest every progressive bee-keeper, since Ernest's visit to the East; and he there found a majority of the bee-keepers using a fixed-frame hive. It has aroused an inquiry in the minds of many of the bee-keepers of the South and West: Does the fixed frame possess advantages with which we are unacquainted? and have its disadvantages been exaggerated? The discussion has, I think, disclosed the fact that there are more using a fixed-frame hive than was generally supposed—not from mere choice, but because they were convinced, after trial, that it possessed advantages not found in the hanging or adjustable frame.

I believe it is generally conceded, that, in the fixed-frame hive, there is less burr-comb built than in the hanging frame, especially between the hive and super; that it possesses superior advantages when hives are hauled on wagons to out-apiaries or distant fields to take advantage of honey-flows not existing in their own neighborhoods. The frames being fixed, they are ready to load on the wagon without having to stop and fasten them in the hive by some device, and then unfasten them on arrival at destination.

The disadvantages claimed for the fixed frame are, that they can not be manipulated as fast or as easily as the adjustable frame; but when Ernest saw some of the prominent bee-keepers of the East handle fixed frames easier and faster than he could the loose frame, he was convinced that the disadvantages claimed for it in this direction had been greatly overrated, and so I think.

I have been experimenting with hives for 12 years, having tried most of the different styles that have laid claim to popular favor, being desirous of obtaining the best hive invented. Having tried many of them, I will say that I

can handle a fixed-frame hive, invented by Mr. Armstrong, of Jerseyville, Ill., who is now out of the business, with greater ease, and faster, than I can any loose-frame hive that I am acquainted with. But I have settled on a shallow fixed-frame hive, brood-frame 5 inches deep. Two cases filled with these frames make a brood-chamber. Here we have nothing but white clover to depend on for surplus, and it is gathered in from two to five weeks. Now, in order to get through the honey-harvest with as few unfinished sections as possible, we must devise some plan to keep the bees at work in the sections from the time they commence until they are finished; for if we allow them to stop, which they usually do when they swarm, the harvest is likely to be over before the sections are finished. Now, in order not to have the bees stop work in the sections when they swarm, I move away the hive that has swarmed, and in its place I set one case of the shallow hive; put on a queen-excluding honey-board and the supers from the hive that has swarmed; then run the swarm in the new hive. The brood-chamber being so shallow, the bees are forced up into the sections; the work goes on, and the sections are completed without delay. In four or five days the queen-excluding honey-board can be taken off, if desired. The queen will not go above in the sections. If, when the sections are about completed, there is not time to finish another lot, raise up the super and insert between it and the brood-chamber another section of the brood-chamber, which the bees can proceed to fill for winter stores, or it can be extracted.

While the plan above is not new or original, yet I think it worth repeating, as we sometimes have to read a thing two or three times before we think there is anything in it.

Delhi, Ill., Feb. 5.

H. D. EDWARDS.

[Yes, it appears that there are more using fixed frames than was generally supposed, and that, too, when most of the books and journals for years have declared against them. Now that the tide is changing, the fixed-frame users will increase greatly, but the loose frame will continue to be used largely yet. See page 224.]

### R. F. HOLTERMANN ON A VISIT.

HE CALLS ON MR. ALPAUGH.

A visit to the home and apiary of Jacob Alpaugh, St. Thomas, Ont., could not result in any thing but material gain to an observing bee-keeper. On every hand we find ingenious contrivances to lessen labor, and to do work in a better manner. To assure the readers of GLEANINGS that these inventions are practical, I need only to mention that they are in use by Mr. Alpaugh and others, and that Mr. A. intends running five apiaries the coming summer, and has at present 370 colonies, 190 of them in the cellar, the remainder wintering on their summer stands. The bees wintered on their summer stands are packed four in a box, two entrances at opposite sides. They are packed with forest-leaves, no packing at the bottom; at the top, a fresh quilt and about eight inches of forest-leaves; the entrance is left open to the extent of about eight inches. A few colonies are being experimented with for the second year, the first having been an entire success. An empty story is placed between the bottom-board and the body of the hive; an entrance is left in each; an eight-inch packing of forest-leaves is put above the body, with bees in it. A new quilt is, of course, put above the bees. No further protection is given to the bees. Of

course, we have had several mild winters, and it would hardly be advisable to adopt this plan generally at present.

In order to give the method of cellar wintering, the cellar must here be described. It is 18x11 feet and 6 feet high. The walls have no connection with the outside. The entire cellar is inside of another 30x25-foot wall made of stone 16 in. thick, and with a cement floor, the latter common to all. The inner compartment has for its walls half-thickness brick. The ceiling is boarded with matched lumber against the joists. The air, hot or cold, can, therefore, pass clean over and about the inner repository, all but the floor. Two ventilators pass into the inner cellar. One, 4x8 inches, is attached to a chimney; the other, 4x4 inches, passes up through the center of the house. Both generally draw air from the top of the cellar; but by adding a length to the pipes they can be made to draw from the bottom. A door connects the inner repository with the outside cellar. Either wire or solid wood can be used. So far this winter the screen only has been used. The main cellar is further ventilated by means of a door at one side, and on the opposite side a window. The door to the inner repository is between the door and window of the outer, giving a free current to the bees when desired.

There is another compartment which contains a large stove, used as a furnace. From this the air around the inner repository can be heated to any desired temperature. The only difficulty, Mr. Alpaugh says, is when the outside temperature gets too high. The bees are packed almost solid, four tiers high. The bottom tier is about four inches from the floor, and this tier has an inch rim between the body and the bottom-board. The greatest number of colonies ever wintered here was 260, and the temperature has been as high as 60°, seldom as low as 50°. No trouble has been found in regard to spring dwindling, and there were not enough dead bees to cover the cellar floor up to the time of my visit, Feb. 7. We raised the quilt of one colony. The bees were as small as in summer, bright and clean. They certainly were not hibernating, however. The 190 colonies made a slight hum, but one could scarcely detect the odor of the bees—a very good indication of a healthy condition. I feel satisfied that the bees go into winter quarters in good condition. Of course, this is a great step toward successful wintering. I have for years felt that Mr. Alpaugh had a very fine cellar for wintering bees; and the only addition I might advise would be a spring of water to assist in keeping down the temperature in spring.

In a future number I propose describing a few of Mr. Alpaugh's inventions in the bee-line; and as your readers may be interested in one or two contrivances about the house, not in connection with bees, I shall take the liberty of briefly describing them, especially as I know you have a weakness for pure water. The cistern, or tank, for soft water stands on the floor of the main cellar. It is 6 ft. in diameter and 6 ft. high. The water is caught from the roof of the house and pours into the top of the tank. The overflow pipe draws the water from the bottom and communicates with the house-drain. A tube connects with the overflow-pipe, just where it bends over the tank. This tube carries all foul air from the drain to the chimney, joining the kitchen stovepipe, I believe. The water in the tank, by means of the above, and being quite open at the top, is pure, and used for drinking, frequently; so, Mr. Root, when you go to Alpaugh's you will find waiting for you soft water as well as a soft bed.

MR. ALPAUGH'S DEVICE FOR DRAWING WATER.

I was attracted in the woodshed by a wire-

cloth trap-door covering a box. Asking what it was I found it covered the box upon the well-platform; and immediately above it, and suspended to the rafters of the shed, was a wooden roller with two light ropes attached. I knew Mr. Alpaugh could afford a pump, but I received the following explanation: "I believe that every well should be so arranged that the air has full access to the water. That is why I have the pump out and the pail to dip; also the wire trap-door. The latter allows a constant free circulation: the former takes a certain amount of fresh air to the water every time we dip, and takes it from the surface at all times. We could not use the water when we had the pump in it; but now, as you can see for yourself, it is very good, for surface water." The above contrivance is to make the drawing of water easy. It consists of simply an eighteen-inch roller, half of it two inches in diameter, the other half four inches in diameter. To the latter a rope is attached, long enough to strike the water and allow the attached pail to sink and fill. The pail is galvanized iron. To one side is attached a weight, so that, when the pail strikes the water, the pail is drawn to one side and fills. The pail rights itself the moment the rope pulls on it. To the two-inch roller is attached a cord half the length of the one attached to the 4-inch, and to this is fastened a weight just the weight of the zinc pail when filled with water: when the weight rolls up, the pail goes down; and when the pail comes up, the weight goes down. So it takes a little pull (you can do it with thumb and finger) to bring the pail down and about the same to bring it up. With a proper catch to clasp the bail of the pail, it is a pleasure to draw water. It is fully as easy as pumping, and the frailest woman can work it without much exertion.

When I think of all the places I visit where they draw soft water, and sometimes hard, by means of a rope or a stick attached to the pail, I feel as if you should turn that simple roller, and have it among your household conveniences, for such it assuredly is. It may be old to some, and to many new. R. F. HOLTERMANN.

Romney, Ont., Feb. 16.

## GLOVES—WHAT KIND TO USE.

RUBBER GLOVES NOT SUITABLE FOR BEE-WORK.  
FINGERLESS GLOVES PREFERRED;  
DRESS FOR LADIES.

*Friend Root:*—I, for one, have used rubber gloves in the apiary, but I did not like them. They draw, and burn the hands until one can hardly endure it, especially if the weather is very warm; and when you take them off, your hands will look as if you had been washing in hot suds all day. Another thing is, they are so clumsy in handling frames that one is apt to drop one end of the frame on the hive with a jar, and the result is—mad, stinging bees.

I like my fingers uncovered while working in the apiary; but I prefer the backs of my hands covered. As much as I dislike propolis on my fingers, I would rather endure it than to wear rubber gloves. I like fingerless gloves, and I will tell you how I make mine. Take an old pair of stockings; cut the feet off; cut a small piece out of the sides about two inches from the end where you cut the foot off. This is for the thumb. Take a thread and needle and whip the edge over and over, not too tight; next whip over the bottom so it won't stretch so much; then sew it together in three places; that makes four finger-holes; then run a rubber cord in at the top to keep them up on the arms. The gloves keep the bees from crawling

up the sleeves; protect the hands from the sun and a little from stings. I will say *a little*, for the bees will sting through them; but do as in the A B C—that is, slap your hand against your person, and you will suffer very little from stings. They are so easily made, and so inexpensive, that when one pair gets soiled, you can burn them; or, if one chooses, they can be washed and used again.

I think Miss Emma will find bed-ticking aprons too heavy and warm for summer. They will do very well in spring and fall. Last season I used seamless-sack aprons with large pockets sewed on flat made out of Indian-head factory, also faced around, and belt of the same. I liked them very well, as the honey does not leak through them. I found them pretty warm in June and July. This coming season I am going to try a soft pliable kind of table oil cloth. I don't think paper aprons would do, on account of fire from the smoker. The apron and glove part doesn't bother me as much as the head-dress. I don't like veils or wire-screen hoods very well. They are hard on the hair. Still, by wearing a net or a thin muslin cap to protect the hair, I can get along very well with the hood. I wear one made like Mrs. L. Harrison's with a cape and draw-string at the waist. With this kind of a head-dress, and my fingerless gloves, and my long apron, I think my dress is pretty well protected.

MRS. W. G. TITTSWORTH.

Avoca, Ia., Feb. 8.

[As practical and as extensive a bee-keeper as W. L. Cogshall uses fingerless gloves. I never wore any thing of the kind; but if I worked with some of those York State hybrids I should certainly want them. Hello! here is another who prefers fingerless gloves. He writes:]

I noticed an article in your journal about buckskin and other gloves, and I beg to offer a suggestion. I use gloves made like mits, covering the hand nicely, and just letting the ends of the fingers protrude. These are home-made, made of white linen or domestics. The reasons for their use are, they are white; they prevent the sun from burning the hands; they are nice to use, and, above all, can be frequently washed, and thus kept nice and clean. If those who use gloves will try those made of two thicknesses, as above stated, of linen or domestics, they will find them vastly superior to rubber, and much pleasanter to wear in every way.

Atlanta, Ga.

T. E. HANBURY.

### A HIVE.

DR. MILLER HAS GONE AND INVENTED A BEE-HIVE.

"Didn't know I'd been studying up a hive?" Well, now, you listen. It's to "fill a long-felt want." Some people want a hive that is just right for cellar wintering—a single wall, with nothing inside but the frames—precisely the one I'm talking about. Some want a hive with a dead-air space, light enough to be easily handled. Mine's just that. You see, it hits everybody. It's an A 1 affair. I first called it "*The A 1 Hive*;" but the "1" seemed so small a number I left that out, and I thought the name still pretty long, and so I dropped the "*The*," leaving the name, "*A hive*," and then I changed the big "A" to a little "a," so that, when anybody ordered a hive without mentioning any particular name, the supply-dealers would be sure to send mine.

It's a summer and winter hive. I'll tell you about it. An outside body just like the Dove-

tailed; inside of that, the frames. These are closed-end, the top-bar being closed at each end like the Hoffman. A dummy, or follower, is wedged up against each outside frame. That's for a summer hive.

For a winter hive I have invented a stick in manner and form as set forth, of just such size and proportions as to fit in the spaces between the top-bars. When the harvest is over, these sticks are put in. You will now see that we have a dead-air space all around. At each end of the hive there is a space between the closed ends and the wall of the hive. At each side there is a space between the dummy and the side of the hive. After the sticks are put in, the bees will glue every thing air-tight, leaving a dead-air space between top-bar and cover.

Now, don't you see that here is a hive, warm, light, good for any season of the year? What? "Nothing original" about it? That's just like A. I. Root. Lie awake nights thinking up a big thing, only to be told it's "nothing original." Well, anyhow I'd like to know who invented those sticks in manner and form as hereinbefore specified.

### LAYING WORKERS.

G. B. Replogle has given me his plan of getting rid of laying workers. It is based on the fact that, in a hive containing laying workers, the bees are all old enough to know the way to their hives, no matter where they are put. So, after getting the bees of such a colony to fill themselves with honey, he shakes them down in front of a colony containing a laying queen. Being filled, they are received all right; but on their first flight they will return to their old location, where a caged queen may be given them. The laying worker or workers will not fly out, but will be killed. The plan is ingenious, and I don't see why it won't work. I should think some of the bees, at least, would be so much better pleased with their new quarters that they would mark their location on their first flight, and not return to the old place. But there would be no great harm in that.

### FIXED FRAMES AND CLOSED ENDS.

The matter of fixed frames and closed-end frames has been pretty thoroughly discussed; but some of us old fogies are a little anxious yet, for fear we shall be driven with the current into some place we don't want to go. There is no question as to the desirability of having frames always fastened in the hives, if we can have the advantages with no accompanying disadvantages. The prominent question that comes up in my mind is this: "Can frames that touch together throughout the whole or a part of their end-bars be handled as rapidly without killing bees?" We are asked to believe that we can, and yet—and yet. Does it look reasonable? Of course, I have confidence in the word of those who say they can; but, have they tried fairly both ways? I may be asked why I didn't try both last summer. I did intend to, but failed to get the frames made at either of two principal establishments to which I applied, and had not time to make any myself. I am not a good hand to make experiments, for in the busy season I am worked to the limit of my time and strength, with little time for any thing but straight work.

Assure me that fixed closed-end frames are not bee-killers, and I think I am "fixed." But if the Hoffman frame, with the end-bars touching part way, kills no bees, why not go the whole figure and have the frames come together everywhere except that part of the top-bars which is directly over the comb? That would allow no bees to get on the outside part of the frames unless they entered at the bottom of the frame-ends. In that case it seems to me there

would be no glue on the outside of the frames unless at the bottom of the end-bars.

On page 87, G. F. Robbins asks that there be only  $\frac{3}{8}$  of an inch play between the end-bars and the end of the hive, and E. R. replies, "No, it would not do to leave the usual  $\frac{1}{4}$  inch between the closed ends and the end of the hive." You may be right, but please tell us why. With any thing less than  $\frac{1}{4}$  inch you can count for a certainty on having the lower ends of the end-bars thoroughly glued to the hive.

In days gone by, the insuperable objection supposed to be against fixed distances was that combs were not all alike, and fixed distances would thoroughly prevent interchanging. A. E. Woodward brings up the same objection as the result of experience (page 96). I must confess I don't now believe there's much in it. How much advantage do the loose hanging frames really have? How much difference do we make for inequalities of combs? I must own that I don't pay any attention to them, and I doubt whether others do. I try to space the top-bars equally; and if I succeed perfectly in my endeavor, they are spaced precisely as they would be with Hoffman or closed frames. The only difference would be, that, with such frames, I could do easily and quickly what I can do only imperfectly with loose frames, even after spending much time at it. C. C. MILLER.

Marengo, Ill.

[Well, doctor, I have been studying your hive pretty carefully, and for the life of me I can not tell whether you are in earnest or whether you half mean what you say. There are some good things about your hive, fooling or no fooling. I know it is cruel to say so, but this method of plugging up the spaces between the top-bars with suitable sticks was suggested by some brother a year or two ago in GLEANINGS; and, if I remember correctly, he has put the thing in practice, and says it is all O. K. But, doctor, there is a better way than that. Throw away the sticks, and lay an enamel cloth on the frames, and the bees will seal it down tight, and you will have your dead-air spaces and all—see?

The reason we do not want a bee-space back of the closed ends, or, rather, between the closed ends and the end of the hive, is to prevent the bees from getting *behind* and propolizing in the cracks on the *back* of the uprights, etc. You see, if these uprights are thick enough to fill up this space, and yet leave sufficient play to be readily removable, the bees can propolize them where they come in contact on the *inside only*, and you will see this would make quite a difference in their mobility.

As to fixed frames not being interchangeable, there are only two that I know of who have urged this as an objection. I questioned very closely the York State bee-keepers—prominently, Elwood and Hoffman—on this very point: viz., whether fixed distances prevent the frames from being alternated or interchanged from one part of the brood-nest to the other. They hardly knew what I meant; and when I questioned them further they said they had experienced no such trouble. Closed-end frames on the Quinby plan will not kill bees—in fact, not as much so as ordinary loose hanging frames in wood rabbets. I know some of you will be somewhat surprised, but nevertheless this is a fact. Mr. Elwood will shortly explain *why* this is so, in an article, and so I will not attempt to explain.

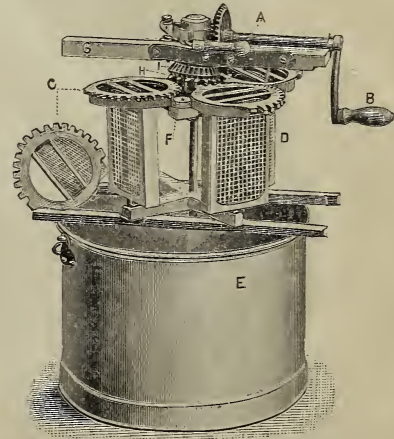
With the Hoffman frames there will be killing of bees if there be careless or unskillful handling. But Mr. H. himself avoids the trouble, and I think the rest of us can. You know that, when we put a flat cover on a hive, we kill bees if we set it flat down on the square edges of the

hive; but with a *sliding* motion, in the hands of those who use that cover, there is not the least excuse for killing bees; and the same thing is true, to a very great extent, in handling the Hoffman frame.] E. R. R.

## REVERSIBLE EXTRACTOR.

### ANOTHER MACHINE.

As per request, I send you a photograph showing my improvement in automatic reversible honey-extractors, taken from a rough model of my own construction. It will be seen that the mechanism is such that reversing the motion will reverse all the comb-baskets, with positive action. The comb-baskets stand and reverse on a pivot at the center of their bottom end, the top end being held in position and reversed by metal rings having cogs half way or more on and around their outer surface, with large or stop cogs at each terminus of cogs. The rings have a flange all the way around from the base of the cogs downward, which work against anti-friction rollers, as at F on the end of the arms which hold the rings in position. The rings are secured to the comb-baskets in such a way as not to interfere with this flange working on the guide.



LAWSON'S REVERSIBLE EXTRACTOR.

The cog pinions are fastened together and driven by the beveled wheel from the crank, and revolve loosely on the shaft—the lower one, or spur pinion, working in the cogs of the rings, and, when in contact with the large or stop cogs, set the extractor in motion. The comb-baskets with rings can be instantly removed from the machine for cleaning, and just as quickly returned to position. The brake A is very powerful, and will stop the machine almost instantly. It is composed of a drum secured to the top of the main shaft, and encircled with a strap secured to the cross-bar, and tightened with a lever.

This machine is not mere fancy theory, as I have done all my extracting the past season with one of about the same construction, and I can truly say it gave me entire satisfaction, and, in my humble opinion, is the extractor of the future. ALLEN J. LAWSON.

Brighton, Ont., Feb. 3.

[We at first did not see how the rings at the top of the basket were held in position so as to mesh into the gear of the driving-shaft; but we notice the little rollers you speak of as F in the

cut, and we have no doubt they will hold the rings in position. Your extractor offers facilities for putting in and taking out the combs, and the action of the reversing would be positive and certain. The extractor will work, no doubt; but we are inclined to think the expense of manufacture would preclude its general use among bee-keepers. So much gearing is expensive; and, besides, the can will be large.]

### WAX SECRETION.

DO CIRCUMSTANCES OR THE BEES GOVERN THE SECRETION OF WAX SCALES? ARE THEY EVER WASTED?

Many writers for our bee-journals, and some of them our most cautious and able bee-keepers, take the position that bees have to secrete wax, and that if comb or foundation is used the wax is lost. But, is it true that bees have to secrete wax? I greatly doubt it. Nature has not arranged things that way. The cow secretes milk when there is a young calf that must have milk. When the bees need wax to form comb, then we find wax scales in the wax-pockets, otherwise we do not find them. I feel quite certain of this. I have hived swarms on combs, on foundation, and on frames with neither comb nor foundation. In the first two cases the bees would be very active, and it would be very difficult to find any wax scales. In the other case, most of the bees were very quiet, and almost every one would have wax scales in the wax-pockets. Even those flying out would show the scales. Now, if, as some contend, the bees in the first cases had to, and did, secrete the wax, where were the scales? I could find no signs of them, and do not believe they had any existence. In case of using foundation in brood-chamber and in supers, I have often had great difficulty in finding a bee with the wax scales to show my class; but, once hive a swarm in an entirely empty hive, and how soon we could find the scales! Indeed, it was hard to find a bee without them. It is hard to explain just how the bees regulate this matter. I have thought it was through activity. If very active, no scales are secreted; if quiet, or active to only a limited extent, then wax secretion was active. When we work mares hard, the young foals get too little milk. The mares can not secrete a full supply of milk, and work hard at the same time. Is it not quite possible that the same is true of bees? When they need comb, they hang quiet in graceful festoons from the top of the hive, and wax secretion goes on rapidly; and the material for the beautiful combs is abundant. When no comb is needed, true to their instinct they hie forth to gather sweet, and wax secretion is nearly or quite suspended. This hypothesis is not without support from analogy. The wax is much like our fat or adipose tissue. We know that it is the sedentary men that become rotund, while our Cassiuses—the lean and hungry men—are generally active. This fact does not necessarily prove that it is wise and profitable to buy and use foundation. Whether foundation is profitable or not, must be determined by actual trial; but that we should desist from its use to save wax scales that else will be secreted and lost, I think is not proved. I think a little close observation will convince any one that bees secrete wax only when, in the economy of the hive, they need it. A. J. Cook.

Agricultural College, Mich.

[Friend C., I am very glad you have brought up just this point. I once thought just as you state it; but other things have tended to change my opinion somewhat. For instance,

where we feed a colony of bees tremendously with sugar syrup, if feeding is kept up for a sufficient number of days wax scales will form in great numbers; and if they are not permitted to build comb, these beautiful pearly scales of wax will fall on the bottom-board in great quantities. You know I once fed a single colony all the syrup that a barrel of sugar would make; as I wanted them to fill and seal over some combs to give to other colonies, they were not permitted to build comb at all, except capping cells. Well, the great difficulty in the way of the success of this experiment was, that so much syrup was consumed in the secretion of wax—wax that fell to the bottom-board—a good deal of it in the form of wax scales. In hiving new swarms on a full set of finished combs (or two full sets, if you choose) we did not find very many scales on the bottom; but the bees filled up all the corners, and built bits of wax all through the corners and crannies of the hives, and put considerable quantities of wax on the top of the frames. As this matter is one of great importance, I hope that we may have more suggestions on the subject. Although we have foundation to sell, my opinion is, and has been for a long time, that, where the brood-combs and honey-boxes are all filled with foundation, more or less wax is lost. I hope you are right, but I fear you are not wholly so in your conclusions.] A. I. R.

### RAMBLE NO. 39.

IN MASSACHUSETTS AND CONNECTICUT.

After a few changes on the many lines of railroad in this portion of Massachusetts I arrived in Georgetown just as the shades of evening were falling. Here I met an ex-pastor of our little Congregational church at home, and who had given us the words of life for several years. This brother was anxious to hear all about our home prosperity. The doubling of our church-membership through a long-hoped-for and prayed-for revival, and the building of a beautiful new church, were all precious things for him to hear. Our talk was necessarily brief upon bee-matters, as the only acquaintance our friend had with bees was through a



THE SCOTCHMAN AND HIS SMOKER.

brother-minister who had lately taken up bee-keeping as a recreation; and my clerical friend was quite elated over the fact that this brother, after studying up on bee-matters, went out among the farmer bee-keepers and told them more about bees than they ever knew before.

"Why," said he, "it is astonishing how ignorant some people are of the common every-day companions of their lives. To illustrate," said he, "a Scotchman in a remote county had never heard of a smoker, and to subdue bees he carried a billet of wool from the stove with the tongs, and wafted it over the hive; and he believed that each drone laid an egg, and then sat on it till it hatched!" The idea was somewhat peculiar, but as I had come across such an idea before in my travels, I was not over and above surprised at it. It was a pleasure for me to talk with this clerical friend, for his moments of converse were packed with valuable information.

But, again the feet of the Rambler sought pastures new; and as the shades of another night enveloped the earth he was over 100 miles away, and in the land of steady habits and—wooden nutmegs! The town of Southington, Ct., charmed me for two days. Several years ago I visited this town and found it a growing manufacturing village. This time it had been incorporated into a borough, and the reason for its growth I could readily comprehend, as I frequently stumbled through a shoal of baby-carriages. I have no doubt this will soon be a large city.



JOSHUA BILLS AND HIS APIARY.

In this lively borough I found a live bee-man, Mr. Joshua Bills. To make all of his spare time useful, Mr. Bills is proprietor of a store for books and stationery; conducts the telephone office, and is also collector of the water-tax. He is connected with several other items too numerous to mention. Mr. B. has a pretty apiary of 21 colonies in Root and Falconer chaff hives. The average honey-yield in this locality is about 50 lbs. per colony; and at the time of my call, the bees were at work upon a flower of the aster family. The home market consumed all of his surplus. The aforesaid babies were rapid consumers of sweets, another evidence that Southington is to be a large city. Mr. B. has but little competition. His most extensive rival, Mr. Holt, lives out several miles in the country, and is a veritable Huber, as he is a blind man; but for all that he is quite successful, being aided, where eyes are needed, by Miss Holt.

The prosperity of Southington is derived from iron-rolling mills, bolt and nut shops, manufacturing of novelties, cutlery, including the Yankee boys' jack-knife, Britannia ware of many beautiful designs, and common screws. While in Providence, Mr. Miller and the Rambler were denied admittance into the extensive works there located; but here, after passing the ordeal of a few questions, George (that's my brother-in-law) and I were allowed to pass, and entered a very noisy room where over a hundred machines were working (or, rather, biting) wire from large coils, and turning it out into screws of various sizes. The work is all done by automatic machinery. The little flat-headed pieces are picked up by steel fingers, chucked, and the screw-thread cut. They are then dropped into a box complete, and in an in-

credibly short time. All the workmen have to do is to change boxes or fill the hoppers when the automatic fingers seize the pieces. And now when I drive a screw home with the screw-driver, I think of the wonderful machine that made it, and am thankful for the genius that has given us so many useful things which are made so rapid and at such small cost. Wonderful are the days in which we live!

RAMBLER.

## THE MILLIONAIRES OF AMERICA.

ARE OUR RICH MEN, AS A RULE, WICKED MEN?

*Brother Root:*—I have just read Alvin L. Potter's letter in Feb. 1st GLEANINGS; and I must confess that, when I read what you had to say in the December issue, I felt somewhat as Mr. Potter has expressed himself; but "charity suffereth long, and is kind;" and I believe you want to do what is right; but it appears to me you are not posted in that line; and Dr. A. B. Mason, I think, is a little off too. I should like to quote you a few passages of Scripture: Psalm 37:16: "A little that a righteous man hath is better than the riches of many wicked." Are not the rich nearly always wicked men? Prov. 30:8: "Give me neither poverty nor riches." The Wise Man thinks it not best to be rich. Dr. Mason does. Solomon says, "Labor not to be rich."—Prov. 23:4. "Deceitfulness of riches choke the word."—Mark 4:19. "How hardly shall they that have riches enter the kingdom of God."—Mark 10:23. Then why wish for more millionaires? "Woe unto you that are rich."—Luke 6:24. "Woe unto you lawyers also, for ye lade men with burdens grievous to be borne, and ye touch not the burden with one of your fingers"—Luke 11:48. Are not our legislative halls full of lawyers? and are not many of them worth their millions? I claim that no man has ever *earned* an honest million. If that is so, how is it possible for this country to prosper, and the people be happy and out of poverty, when we have so many rich men? Why, John D. Rockefeller is worth 135 millions; W. W. Astor, 120; Cornelius Vanderbilt, 90; Jay Gould, 75; Henry M. Flagler, 60; Charles Pratt, 55; Wm. K. Vanderbilt, 50; John H. Flagler, 40; Fred W. Vanderbilt, George Vanderbilt, William Astor, and Louis C. Tiffany, are worth 35 millions each; and I have the list of hundreds more, running down to three millions each. G. F. HESELTON.

Homeland, Mo., Feb. 3.

[Dear brother, the figures you give us, if they are indeed true, seem to indicate, I admit, that there is something wrong. But let us remember that, besides the good texts you quote from the Scriptures, there is another one that says, "Why beholdest thou the mote that is in thy brother's eye, and considerest not the beam that is in thine own eye?" Please bear with me if I suggest that there is danger—yes, very great danger—of a bad spirit getting into *our* hearts also, when we undertake to discuss these matters. When we get to feeling bitter and envious toward the millionaires, we are certainly in the wrong, whether they are or not. Now, it seems to me your mistake is in your *sweeping* assertions. You claim that no man has ever *earned* an honest million. Please bear in mind, dear brother, that George Muller, one of the grandest missionaries the world has ever known, and a home missionary at that, handles money by the millions of dollars. In fact, the Bank of England has said, if I am not mistaken, that they would honor a draft with his name to it, for a million of dollars. Surely you do not

mean to say that *he* is a wicked man. This vast sum of money that he controls has been given into his hands in answer to prayer, and his life and work have been before the world almost like a modern miracle. I admit that this is not quite a parallel case, for in one sense Muller is a poor man. He uses this property for the benefit of the orphans and destitute of the great city of London. Now, is it not possible that some of these men of property you mention are using their property in a like way? Ernest just informs me that our schools of learning—our colleges and seminaries—were, many of them, founded, and now kept going, by our millionaires. In regard to your Bible texts, if you will consult your pastor or our doctors of theology, and the commentaries, they will tell you that the word "rich" in a scriptural sense refers to those who lead a life of selfishness and ease; so in reality the word describes the *way* a man lives, rather than his standing at the banks. We all respect and honor a man whose word and signature are as good as gold; but we as a people do not respect nor honor him who looks with disdain upon the workingmen of our land, especially those who work with muscle as well as brain. Let us work and pray that our rich men may become Christians, and the spirit of Jesus Christ will manage the money matters.

You err, friend H., in assuming that money must be *earned* in order to be honestly owned. Some years ago a babe was born in Hoboken, N. J., and he was worth \$40,000,000 before he could use a cent. That money founded the Stevens Institute of Technology in Hoboken—one of the grandest institutions in this or any other land. Grand old Peter Cooper was worth millions over and over; and yet every workingman in New York loved him as he did his father. When he drove along Broadway, by general consent the teamsters made way to let the old philanthropist pass by in his plain old shay. Why? Because he gave to the people of the world the celebrated Cooper Institute in New York, where free instruction is given in all the arts and sciences. George Peabody gave \$17,500,000 to the poor of London, to improve their homes. Vanderbilt gave half a million to the Fisk University, of Nashville, Tenn. Space would fail us if we were to tell all the good things that rich men have done for mankind. Certainly, God designs money to move in large masses, just as he collects the water in lakes and seas. What would the world be if the water were all equally divided?

You ask, "Are not our legislative halls full of lawyers? Perhaps you do not mean to reflect on the lawyers of the present day. The class in the text you quote certainly does not mean lawyers as we know them at the present time. Please remember that our fathers, sons, husbands, brothers, are lawyers; and to condemn them in toto would be as unjust and unkind as to say that the grocers of our land are all rascals. Since I have been on the school-board of our town I have become acquainted with more or less of our lawyers, because we always find it wise to have at least one lawyer on the board; and I have learned to respect them and to look up to them as I have never done before. As a rule, they urge people not to go into law; and several times I have seen them give their time gratis to point out to farmers, and other classes of people uneducated in law, the folly and injustice of the thing they had in mind. We know there are many of them who are not Christians, and we lament it; yet I have known even these to give advice that was very much in line with what we might expect from the pastors of our churches. If we have the right kind of love toward our neighbors we certainly

shall not be in *haste* to decide they are rascals, even if they do happen to be lawyers.

Now, dear friends, had we not best let this matter drop right here? I admit that I am not posted, and that I am unable to handle politics and finance; but I do feel that it is in my province to say that these troubles, like all others that threaten our land of liberty, are to be remedied in the line of the text, "Not by might nor by power, but by my Spirit, saith the Lord of hosts."

### THE REASON WHY.

A PLEA FOR THE CROSSWISE L. FRAME: A GOOD-NATURED SCORING OF SUPPLY-DEALERS' WANT CLOSED-END FRAMES.

*Mr. Editor:*—While the hive and frame question is one main topic at present in GLEANINGS, and everybody is talking, will you allow me to say my piece, as I see you sometimes allow contrary people to talk? Why is it, that, when you were getting up a new hive (the Dovetailed), you didn't embrace one more change, and thus make it a perfect hive—that is, a change in the frame, and make it to run crosswise of the ten-frame hive, instead of lengthwise? After testing almost all of the sizes and styles of frames in use, and for many years, I am fully persuaded that the regular ten-frame Langstroth hive, with the frames crosswise, has more good features than any other hive I know of. I know, too, that many will "kick" at this idea. Why? Because they are not the standard frame. But, hold! Why is the Langstroth the standard frame? Because it started first; and after the patent expired, supply-dealers and hive-makers went to making and selling them, and each dealer began advertising and puffing their superiority over other makes. Editors of bee-journals puffed them. Why? Because they were supply-dealers, and it was to their interest to do so. Bee-keepers fell into line, and began buying and using them. Why? Because the bee-journals say they are the best. Soon the bee-keepers who had never used any other frame began writing for the journals on the superiority of the Langstroth frame over all others; then, when a standard frame is talked of, it must be the Langstroth. Why? Because there is most of that kind in use, and all the fixtures, such as supers, foundation, sections, etc., are for that sized hive. Why, bless you, nothing would have to be changed but the frame, in length, that's all; and the many conveniences gained would repay for doing that. Some of the points gained would be, no sagging, no wiring needed, combs not so liable to break in handling or extracting; straight combs; easier to contract by a division-board for weak colonies in spring. With a division-board in the center, it is in the best shape possible for two nuclei in a hive. Combs will not break in hauling to and from out-apiaries; are much nicer and easier for lady bee-keepers to handle; much better for starting nuclei with few bees. While the capacity for bees, brood, sections, and comb surface will be exactly the same as in the ten-frame Langstroth, I use wide frames for sections, and a frame this size holds just six  $4\frac{1}{4} \times 4\frac{1}{4}$  sections; or, by putting two brood-frames together, I have a wide frame, and it is much easier to get sections out than if it were one solid wide frame; then, when it is empty, I can use them for combs. But now I am making my frames closed-end, and they will not do for sections.

*Mr. Editor,* I was a little amused when reading your foot-note in answer to friend E. J. Baird's question on this subject, page 453, 1890:

"I do not know of anybody now who uses them to any extent. The only objection is, they are out of the beaten track." Why are they out of the beaten track, and not in general use, or not the standard? Simply because supply-dealers and bee-journals don't puff them, that's all. I can count at least ten bee-keepers who do use them, and like them too, and scores who would use them exclusively if they were advertised for sale. I have at present 50 colonies on Langstroth combs, and 125 on the crosswise frame. I know, by years of practice with both sizes of frames, which is best for all purposes, and I wish you had introduced your new hive with the crosswise closed-end or Hoffman frame, and break away from the beaten track for something better.

This is an age of improvements, you know. Ernest speaks favorably of Mr. Manum's frames not sagging. Not half of the large honey-producers here in the basswood region of Wisconsin use the long Langstroth frame; and Wisconsin, you know, comes to the front in honey production.

I could say much more in favor of adopting the crosswise Langstroth frame, and also show indisputable reasons why the long frame is not as good. I have no ax to grind. I am only a practical bee-keeper, and not a supply-dealer or hive-maker, except for my own use. But, let us still be progressive in hives as well as in all else pertaining to bee culture.

Orion, Wis., Feb. 23.

W. T. STEWART.

[I wish there were more contrary people who would speak out their mind as good naturedly as you do. You have given us some excellent reasons why the L. frame is the standard; but you have not named them all. No doubt, for your locality and other places of a similar nature, the crosswise L. frame is better; but don't forget that localities differ. I know, that is, I think, there are places where the Quinby frame gives better results. I am also of the opinion that the fixed frames are adapted for most localities, but there are some places where they would not answer as well as the loose frame. There is a good deal of twaddle about localities making a difference in results; but when we come to talk about the size of frames, there is some sense about it.]

Father Langstroth, years ago, experimented with a great many different sizes, and finally settled upon one in use by bee-keepers generally. The trouble with the crosswise frame is, that it does not hold comb enough to suit most bee-keepers. We want a comb not too deep, but one that gives plenty of brood-rearing surface, and that we get in the L. size.

With your crosswise frame you are obliged to handle 13 instead of 10, as in an ordinary ten-frame Langstroth body. There is quite a little difference you see.

One great reason why the L. frame is so generally accepted is because it is a compromise between the very shallow and very deep frames, and because, for most localities and most bee-keepers, it gives good results.

You overlook one very important fact. If the time has not already come it has almost, when over half of the hives in use will be eight-frame instead of ten-frame; so that the eight-frame people could not use the crosswise, even if they chose to do so; that is, the crosswise, if used at all, would have to be shortened—then what? there would be another frame.

Still another thing: We have had scores of testimonials to the effect that bees would gather about as much honey, and do about as well on the L. size as on any other, and that with comparative tests. But there are exceptions to all rules. In this case, take, for instance, that of

the Dadants. Instead of using a *smaller* frame than the Langstroth, they want a larger one—the Quinby. And they say they have made comparative tests to prove the superiority of the larger frame. Now you call for a *smaller* one. Don't you think that the L. frame is a very nice compromise between the extremes, for most people?

You say no wiring is needed for crosswise frames. There are very few who will agree with you on this point: that is, those who have tried wiring and not wiring. A crosswise frame needs wiring, else why do so many use wire for square frames? It is true, that a *shorter* top-bar would be less liable to sag, but we compensate for that in the longer L. by making them  $\frac{5}{8}$  thick now.

Perhaps two-thirds of those using other than the L. frames would be glad to use a standard size if they could make the change without expense. Why? Because, from the few comparative tests they have made they get just as good results from one frame as another.

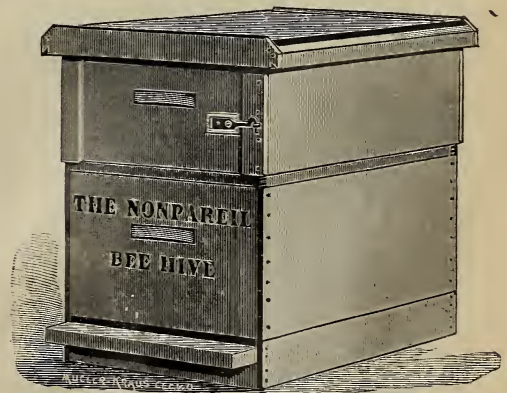
I do not overlook the fact that you represent your own locality. You want a smaller frame. The Dadants represent their locality, and they want a larger frame. The fact can not be denied, that bee-keepers ought to have a standard, and that that standard ought to be the one that *most* bee-keepers will agree upon, and that is the Langstroth frame. The standard in England is the crosswise L., or very nearly that; but that is not this country. I think I can join hands with you in regard to the closed-ends; but when you advise changing the size of the standard, you will encounter a bigger job than you think for.]

E. R. R.

### THE NONPAREIL BEE-HIVE.

DR. TINKER EXPLAINS HIS HIVE.

The engraving for the accompanying illustration was made four years ago, since which time the cover of the hive has been improved by making a square framework, similar to that of the Simplicity hive, and covered with sheet roofing steel, made here in New Philadelphia. An improved clasp of malleable iron, similar to the Van Deusen clamp, has been made to secure

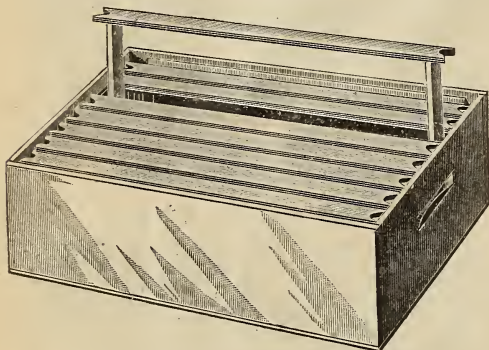


the removable side of the section super. Otherwise, the hive as now made is the same as the original. Where the hive is to be set into a winter case in the fall for winter, a very cheap cover and bottom for temporary use has been devised for all increase during the working season. In this locality, and further south, the hive in two stories will winter as safely as in

box-hives, but at a loss in stores sufficient to pay for a winter case in a few years. When the hive is placed in the latter, the safety of wintering, with proper care and good packing, is insured in our longest and coldest winters. The results of wintering in these hives have also shown that there is far less danger of dysentery when the two-story hive and winter case is used than in any other style of hive now made. At least, several tests in the same apiaries upon the same stores have shown complete immunity from disease when the bees in other hives like the American, the Simplicity, chaff, and several other kinds of hives, some of which were at least three times as large as the Nonpareil winter case, either all died or were so greatly reduced in numbers by dysentery that the colonies built up too late to get a crop of honey. In all of these instances the great difference in results seemed wholly due to the greater depth of the two-story hive, or to the free passageway between the stories.

#### THE NONPAREIL BROOD-CHAMBER.

The chief feature of this hive is the size and shape of the brood-chamber. It will be noticed that it is a very plain and cheaply made storifying Langstroth brood-chamber, with a quarter-inch bee-space at the top above the brood-frames, and an eighth-inch space at the bottom



THE NONPAREIL BROOD-CHAMBER.

below the frames. It contains eight Langstroth brood-frames, notched at the ends of the top-bars, similar to the metal-cornered Simplicity frames, the size being 17 inches long by 7 inches deep, outside measure. The top-bar is  $18\frac{3}{4}$  inches long,  $\frac{3}{8}$  inch thick, and one inch wide. The end-bars are  $6\frac{3}{4}$  inches long by  $\frac{3}{8}$  inch thick, by one inch wide; and the bottom-bar is 17 inches long,  $\frac{3}{4}$  inch wide, and  $\frac{1}{4}$  inch thick. To each of these frames we now attach a spacer, made on the principle of the Van Deusen frame-spacers. They fix the frames without destroying the movable function of the Langstroth brood-frames. The brood-chamber is  $19\frac{1}{4}$  inches long,  $12\frac{1}{2}$  inches wide, and  $7\frac{3}{4}$  inches deep. The inside measure is  $17\frac{3}{4}$  inches long by  $11\frac{1}{4}$  wide.

Owing to the small capacity of this brood-chamber, which contains 830 square inches of brood comb (and after making allowance for bee passageways at the ends and bottom of the combs, not ordinarily over 800 square inches), it is impracticable in the production of comb honey without a queen-excluder. The latter is the wood-zinc combination, the strips of zinc being  $\frac{3}{4}$  in. wide, and two-rowed, as in the cut.

The perforations are about  $\frac{3}{4}$  inch long, so that the excluder contains about 300 of these perforations, which seem to be essential to the ready ripening of the stores in supers. The framework of the excluder is made of half-inch stuff, rabbeted to receive the slats, which are  $\frac{3}{4}$

inch wide by  $\frac{3}{16}$  thick. The queen-excluder for this hive is made with continuous passageways;



TINKER'S PERFORATED ZINC.

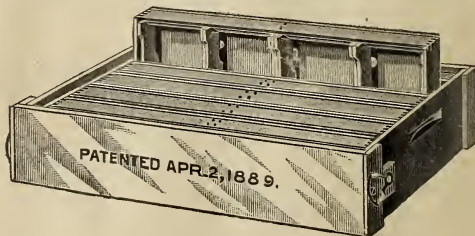
that is, the zinc is placed in the framework so as to come over the spaces between the combs. The break-joint queen-excluder is a disadvantage; and when the stories of the hive are piled up above 24 inches high it becomes a serious disadvantage. As the system of management with the continuous-passageway queen-excluder almost entirely obviates all burr-combs, it will be seen that the break-joint queen-excluder can have no merit on this hive.

#### THE NONPAREIL SECTION SUPER.

This consists of a case with a removable side, containing 6 wide frames holding 4 sections in each. The frames are made with a center-bar to prevent sagging, of the same shape as the sides of the open-side sections. The five separators are made of wood, and perforated. They are  $\frac{1}{16}$  thick, and  $4\frac{3}{4}$  inches wide, and are placed loosely in the case, so that any one of the frames of sections can be taken out, and the bees be readily shaken off, which can not be done where the separators are nailed fast to the wide frames. As the separators come down to the bottom of the sections they entirely prevent the attachment of the combs in the sections to them. They are not only cheaper than tin, but are, on account of the less liability to the attachment of the combs, greatly superior to tin. They are also, when sawed, more durable than tin, lasting an indefinite time. The cut of section super shows the improved malleable-iron clasp.

#### THE WINTER CASE.

This is made of very thin stuff, a little less than  $\frac{1}{16}$  of an inch thick, making the case very light and easy to handle, weighing not far from 25 lbs. The sides of the case are 22 inches long, and are nailed to the framework at the top and bottom, so as to stand upright, making the case both waterproof and very durable. The bottom of the case is made of the same thin stuff, as also a part of the cover. The framework of the bottom is 3 inches wide by one inch thick, the two side pieces being rabbeted to receive the thin stuff for the bottom. Two braces are nailed into the framework at the bottom, to prevent sagging when a great weight of honey is in the hive. The entrance is  $\frac{3}{8}$  by 11 inches.



THE NONPAREIL SECTION SUPER.

and is in a line with the bottom, so that any refuse, in wintering, may be raked out. However, we have never found it necessary to do so, as the bees will do it cheaper than we can.

A block  $1\frac{1}{2}$  inches thick, and wide enough to support a queen-trap, is nailed to the lower

framework at the entrance, and a portico is attached above to keep off rain and snow. The top-frame is made of  $\frac{3}{4}$ -inch stuff,  $1\frac{1}{4}$  inches wide. The cover is a frame made of  $\frac{3}{4}$ -inch boards,  $2\frac{1}{2}$  inches wide, like a picture-frame, and rabbeted on the inner top at the sides to receive the thin stuff to support the roofing tin or sheet steel, whichever may be used. The size of the case is such that a sheet of 20 x 28 roofing tin will cover it and leave room to lap over the sides so it may be securely nailed. Thus this winter case combines a bottom and cover complete in itself, and is preferred with the bottom attached solid to prevent the effects of dampness from the ground and rain, which is sure to affect the bees more or less where the bottom is not made fast.

The management of this hive for comb honey will be the subject for another article.

New Philadelphia, O. DR. G. L. TINKER.

### FOUL BROOD.

HOW TO TELL WHETHER COMBS HAVE BEEN INFECTED.

[Read at the Michigan State Convention at Detroit.]

Though I discussed the subject of foul brood at our last annual meeting, I have, at the request of our secretary, prepared a sort of supplemental paper on the same subject: and, first, I shall add a further word to aid in the identification of the malady. Enough has been written about sunken and perforated capping, and the color and viscid character of the brood recently dead of the disease. In the case of weak colonies generally, and of all colonies during the breeding season, some of these indications will be found if the disease is present, and will furnish certain means of a correct diagnosis; but it is to be noted that, after the breeding season is well over, a strong colony, though badly diseased, exhibits none of these indications. The cappings, if ever present, are all nicely cleared away, and the dead brood is entirely dried up—mere scales, almost of the color of the comb itself, lying fast to the lower side of the cell, and drawn back more or less from the opening. I have samples of affected comb with me, one of which illustrates this point, though the sample is hardly a fair one, as the scales resulting from the dead brood are more apparent than they usually are, being less drawn back, and thicker, and rather darker than they are often found.

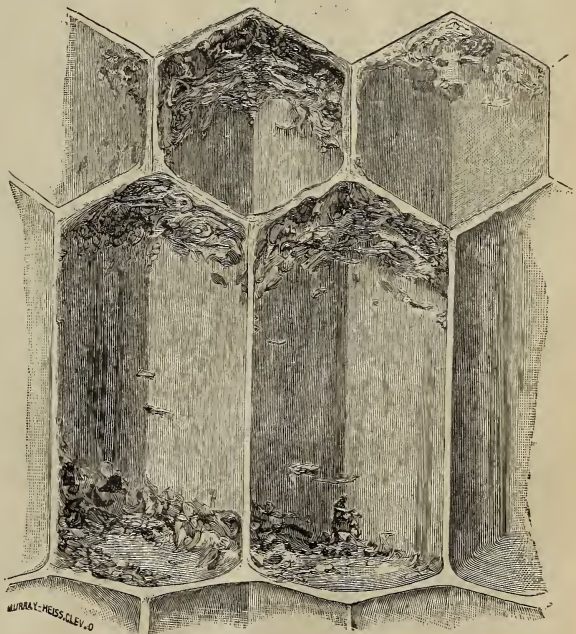
To detect the disease in strong colonies, some little time after brood-rearing has ceased, open the hive and apply your nostrils directly to the combs as they hang in the hive. If the disease is present to any extent, and your olfactory organs are sensitive, you will detect an odor more or less strong, which may be described by the term "old." But not many, at least at first, could say by this test with any degree of certainty whether the colony were diseased or not. It is to be taken only as an indication.

Now take out three or four combs, one by one, from near the center of the brood-nest, and hold each with the bottom-bar from you, in different directions, until the light strikes well into the *lower side* of the cells, when, if affected,

the scales I have described are very evident. The sample makes this plainer than any amount of description can do.

In contending against the evil there is nothing so important as an active knowledge of the sources whence the danger of spreading the contamination arises. With this knowledge, I am convinced there is little necessity for fear that the disease will spread to healthy colonies, if only the sources are within reach of the apiarist. If many wild bees, among which it has a foothold, are in the vicinity, it must become eradicated there in the course of nature before the apiary is safe; for every wild colony affected will, in time, surely die, and its honey, if any be left, will be appropriated by other bees, and the plague unavoidably disseminated. This danger can not well be guarded against; but those at home may easily be reduced to a very small figure. They fall under three heads—those from infected honey, from infected combs, and from infected hives.

Under the head of hives is included, of course, all paraphernalia. I think the principal danger from this source arises from infected honey which may have been left on the parts of the hive by daubing or otherwise. No bee should be allowed to visit them; and, as soon as it may be safely done, they should be boiled in water, scorched with flame, or burned up. Either method is effective. Infected combs are dangerous, not only from the honey, but also from the dead brood which they contain. Every dead larva is a bundle of seeds; and when moistened by honey, new brood, or otherwise, they are released, and carry death wherever



FOUL BROOD SCALES IN COMB, MAGNIFIED FIVE TIMES.

they go. Such combs are safely rendered innocuous by fire or boiling only. The extremest caution in changing combs from one colony to another should always be observed. There is no more certain and rapid way of propagating the malady. Infected honey itself, however, is the chief medium by which foul brood is disseminated, and so it is the principal source of

danger. The bees are sure to contract the disease thereby, whether they obtain it by deliberate feeding on the part of the apiarist, or by gathering up what is carelessly allowed to drip and to be left exposed about the apiary or by robbing. When once pointed out, every bee-keeper should be able to guard against the danger arising from the feeding and the dripping of honey; but to secure protection against robbing, extraordinary care is often required. If bees were deprived of their disposition to rob, foul brood would soon be eradicated. This can not be done. Indeed, to one who has had to deal with the plague, this disposition seems to be increased thereby. The more powerful nations of Europe keep their eyes upon the Turk as the "sick man," waiting for occasion when they may profit by his dissolution. The bees emulate the example of the nations. As soon as they catch the odor of the disease issuing from a hive, they promptly label it "the sick man," and eagerly watch and wait; and at length, unlike Russia, Austria, and the rest, instead of holding each in check, they all turn in at the nick of time to complete the work of destruction, and, like many a human individual and nation, find the seeds of death wrapped up in their ill-gotten wealth.

From infected colonies that are reasonably strong and in good heart, with sound hives having moderate entrances, I should not apprehend immediate danger, but I would keep a sharp lookout for the impending decline. It behooves him whose bees are infected, whether or not he obeys the general injunction, "Keep all colonies strong," to be instant in his efforts to keep all diseased colonies strong. No one will understand me to advise building up such colonies. I mean, only, that no weak one in a diseased condition should be tolerated for a day; and, indeed, it is to be hoped that this advice will be seldom applicable; for it is to the interest of every apiarist to banish the disease by the most effectual method, as speedily as possible.

I hardly need add, that the taking of bees from a diseased colony, and adding them to a healthy one, would as certainly convey the disease in the honey carried as though it were brought by robbers.

I shall close here, for I am sure that, if due and timely heed be paid to the directions given herein, and in my paper of a year ago, no one need be greatly alarmed nor very seriously damaged by foul brood; and I only hope that none of you may ever need even to call them into exercise.

R. L. TAYLOR.

Lapeer, Mich., Mar., 1891.

[I have carefully read your paper, friend T., and I consider it one of the best that has ever been given on the subject. Your method of diagnosing diseased colonies after brood is hatched out, and combs have, after a fashion, been cleaned up, is an exceedingly valuable one; and although I have read a good deal of foul-brood literature, I believe you are the first one to give it. The sample comb that you gave at the convention was forwarded to us, and I exhibited the same in person to our artist, showing him the scales and what we wanted illustrated. After examining it he answered that it was a hard thing to illustrate. Then I said, "Enlarge the drawing five times. This is such an important matter that we want everybody to see it." He did so, and I am glad to present the result above. The scaly appearance around the edges of the cells is perhaps a little exaggerated, but this was necessary in order to show them. That you may understand it better, I will say that the piece of comb was stood on end, and a knife sliced right through three

or four of the cells, longitudinally. The other row of cells is shown just back. A few scales are seen at the bottom, but more of them are attached around the edges, and that side or sides of the cell which are the bottom when in the hive. I shall be glad to have friend Taylor tell us how near the engraving does justice to the thing itself.

Your methods or precautions for preventing the spread of the disease are excellent, all of which we have tried. We can not place too much emphasis on being careful.

Perhaps some may wish to know, in this connection, what Mr. Taylor's method of cure is. It is very similar to the one we give in the A B C book; in fact, I believe it is just the same, because we followed Mr. Taylor.]

E. R. R.

### THAT TRADE-MARK.

MR. HEDDON ARGUES FOR ITS ESTABLISHMENT  
IN THE BEE-KEEPERS' UNION.

On page 143 I see you quote the words of an anonymous writer in the *American Bee Journal*; and in your foot-note on the next page you say that "some of the points are well taken;" but some way I fail to find much argument in the quotation. In the first place, "Bro. Heddon" has never been "enthusiastic" nor has he yet "waxed eloquent" over the trade-mark scheme, but has said from the beginning that it was only a snap idea gathered in a moment's time at the late Detroit State convention. You were there, I believe, Mr. Editor, and will recollect that, at the outset, it was admitted by all that consumers of honey had full faith in the purity of goods straight from the hands of producers. I think few will deny the prevalence of such an opinion. Well, as producers have, in the past, placed lots of poor honey upon the market, and surely as much adulterated as they ever will, that washes away that point presented by Anonymous. The Union will not warrant any thing, neither need it; for already has the public full confidence in the purity of all honey put up by producers. The object of the trade-mark is to let the whole public know at all times just how to quickly determine which is from the producer. Mr. A. can not see how a trade-mark can be obtained from the government, for the Union. Well, your gentle subscriber can see, as well as he can see some other things connected with patent laws and rulings, which many others can't get even a glimmer of. The manager can get a trade-mark of a 30-years' longevity for \$40, and then make out an individual right to any one he pleases. This can be done at a cost not exceeding one cent per person. I wish our friend A. would tell us how the trade-mark scheme can hurt the Union "awfully;" that is what I can't see. Will A. be as kind to me as I have been to him, and enlighten me? If the Union doesn't handle the trade-mark scheme, who will? Only some organization of actual honey-producers can afford to give a great number of bee-keepers such an advantage, at cost. Already the manager of the Union has to be on the alert to detect any attempt on the part of any bee-keeper to creep slyly into the Union for its protection after persecution has already begun. It will be just as easy—yes, much easier, to keep out of the Union, or keep the trade-mark out of the hands of a city packer of honey who happens to import a wasp-nest into his garret in order to be classed as a honey-producer. It will be much easier than to prevent or detect perjury when a witness has taken an oath which gives his statements a hun-

dred-fold weight. I think we shall have little trouble in plugging up the small holes in this dipper, the same as we have to do in nearly all of the affairs of this world. If our basic principle is right, our details can be made to join in the success. Are they? So far I don't see that they are not. Do you? JAMES HEDDON.

Dowagiac, Mich., Feb. 21.

### AIR-CHAMBERS VS. CHAFF PACKING.

S. A. SHUCK DECIDES IN FAVOR OF THE AIR-CHAMBER.

Considerable is being said about "dead-air chambers" in double-walled hives, as against chaff packing. The question arises. "What is known as to the difference between hives with double walls packed with chaff or other light material, and those with double walls and no packing?"

Without calling in question the views set forth by other writers on this matter, I wish to present a few thoughts which I believe have not been set forth heretofore. In the first place, I wish to contrast air-chambers with those packed with some light material. It is well known to all those who have acquainted themselves with the action of cold and heat when applied to air, that heated air rises up, and chilled or cold air settles down. A moment's thought in this direction will show that, as soon as the temperature outside of hives containing the so-called dead-air chambers becomes colder than that on the inside of the hives, the air in the chambers becomes active, and can not be said to be dead. As the outer walls of the hives become chilled, they in turn chill the atmosphere adjacent to them on the inside of the air-chambers. This chilled air settles to the bottom of the chambers, while that near the inner walls of the hives, being warmer, rises up to the top of the chambers, thus starting a circuitous motion, which is continued as long as there is a difference between the temperature outside of the hives and that within the hives. It will be seen that, if these chambers were filled with some light material, such as chaff, this circuitous action of the air in these chambers is prevented, the process of cooling is retarded, and the protection afforded the bees in any hive is in proportion to the retarding of this cooling process.

No little stress is being placed upon the superiority of air-chambers over chaff packing, by some writers, while it is conceded by many practical bee-keepers that bees can be packed too warmly, even during our most severe winters; while it is known, on the other hand, that large air-chambers are not beneficial. As proof of the foregoing, it is only necessary to mention that house-aparies have proven to be the poorest of winter repositories for bees, when no further protection is afforded than that of the building and the hives. But where the hives are thoroughly and carefully packed in dry chaff, bees winter as well, perhaps, in house-aparies as anywhere.

While it is easily shown that chaff packing affords greater protection to the bees, there are other facts to be taken into consideration. Hundreds of bee-keepers have learned that the effect of the direct rays of the sun on the hives is as beneficial to the inmates as it is to our cattle, hogs, sheep, horses, etc. Hence, it will be seen that, while the chaff packing is a protection by retarding the cooling process, it also becomes a hindrance in the process of warming up the hives and their inmates. If the hives were packed full of bees during all severe weather, the benefits derived from the direct

rays of the sun would be greatly lessened, and those afforded by the chaff packing would be proportionately increased, owing to the protection given to the inner walls of the hives. But, on the contrary, the hives are usually less than half full of bees; and, not only this, the entrances being open they permit the unoccupied portion of the hives to become nearly as cold as the outside atmosphere. Owing to these conditions the difference between the protection afforded by chaff packing and air-chambers is so slight that it would be difficult to observe its effects upon the bees.

There is still another difficulty encountered in chaff packing—that of keeping the chaff perfectly dry. If the chaff becomes damp it is more detriment than good; and the injury resulting from moisture in this chaff packing is just in proportion to the degree of dampness and the severity of the weather; as, the wetter the packing and the colder the weather, the nearer it approaches the condition of an ice-chest; and the longer it is in thawing out, and the less the influence of the sun's rays upon the hives. This, I think, is the principal source of unsatisfactory results from chaff-packed hives; and owing to the difficulty in preventing moisture in chaff packing, it is highly probable that air-chambers will give us more general satisfaction; notwithstanding, the degree of protection afforded by these air-chambers depends largely upon their being absolutely tight, so as not to lose the heat except as it is driven through the inner walls of the hives by the action of the cold on the outer walls.

Liverpool, Ill., Feb. 9.

S. A. SHUCK.

### HERE AND THERE.

SHORT NAMES FOR THINGS, ETC.

#### CAP-KNIFE.

Why not drop the long and awkward name, "uncapping-knife," and adopt the name I use for it, the cap-knife? You are welcome to it, and why doesn't it fill the bill?

#### BINDING GLEANINGS.

And now let me give you *my* plan for binding GLEANINGS. Get some of those T-shaped brass paper-fasteners, which lawyers and others use to fasten legal cap and other papers together. Take eight numbers, four months GLEANINGS, leaving on them all covers and all advertisements. The latter are often as valuable as any other part. Arrange the eight numbers carefully, in nice even shape, and, with an awl, punch three holes in the proper places—one in the center and one near each end. Now drive a T through each, having the point come through into a gimlet-hole or other small hole in the bench, or in a board. Then turn the volume over and clip off the sharp points of the T with cutting-pliers or shears. Turn down and then hammer down the points of the T with a light hammer, and it is done. You now have a nice handy little volume about the size of a copy of the *Century*, and a year's GLEANINGS makes three of these little volumes, which are much nicer and handier than a year in one volume. Bound thus, eleven numbers of the 1890 *Review* will make a nice little volume; and the numbers for 1891, and the Dec., 1890, number, will make two nice volumes.

#### CAPTIONS AND NAMES.

And now, friend R., permit me to hint to you that G. M. Doolittle, Borodino, N. Y., wouldn't look a bit worse if placed just under the caption than it does at the tail end of an article. That is, I—I mean to say that it would look just

as well under the caption. And if you would only place it there, you would confer a special favor upon every busy reader of *GLEANINGS* who can afford to waste no precious moments of his limited reading-time; and you would receive the heartiest thanks of thousands of such busy readers. Also, please give plenty of catch-lines. They are always helpful. And whatever you have to leave out, please don't leave out any foot-notes. Do you fully realize that, with the exception of a few of the ablest articles, they are the most valuable and helpful part of *GLEANINGS*? And that is quite right, for so they ought to be. By the aid of caption and name, catch-lines and foot-notes, the experienced and busy apiarist will often be able to catch in a minute the gist of the article, or be able to decide whether it will pay to read the whole of it, or how much of it he can afford to read.

#### THE QUESTION-BOX.

This is a very valuable addition, and even *GLEANINGS* seems a little more spicy when taken with a *Straw* in it. J. W. MURRAY.  
Excelsior, Minn., Feb. 17.

[The "cap-knife" is shorter and just as good. Accepted usage, however (and this is something we can't very well change if we would), compels the use of the longer name, "uncapping-knife."]

#### EVAPORATING HONEY.

SUN HEAT, A LA BOARDMAN, WON'T DO, SO SAYS A CALIFORNIAN.

On page 50 Mr. Boardman asks whether the sun evaporator is not the secret of some of the California honey not candying. I think if he would travel around among California apiaries, as Mr. Root did, he would come to the conclusion that it is not the secret, because he would find very few if any sun evaporators. I admit that honey exposed in a sun evaporator for several days will not candy, at least for a long time; but our sage honey will often remain liquid several years without candying. On the other hand, some of our spring honey will sometimes candy in a week or two after extracting.

The carload of honey which I sold to Mr. Root ran directly from the extractor into large tanks, from which it was drawn into new five-gallon cans; and I do not think you will find any of it candied yet. My experience with sun evaporators has not been very satisfactory. They make the honey darker, and change the flavor, and do not evaporate fast enough. I should like to ask Mr. Boardman whether he can take this honey, extracted before any of it is capped over, and evaporate it thick, without changing the color or flavor; and if he can, how many of his evaporators would it take to reduce 2500 lbs. in one day? We all know it would be a great saving of time and labor to ourselves and the bees if we could extract all of our honey before it is capped; but the point is, whether we can evaporate it artificially, without injuring the color or flavor, as economically as the bees can. I say, no, not by the sun's heat. It is too unreliable, even in California. When your honey is thinnest, the weather is often cloudy or foggy. My only hope now is in "vacuum-pans." I think honey should not be heated to over 150° Fah., and it will not evaporate very fast at that temperature unless in a vacuum. I wish some one living near a condensed-milk or sugar factory would get them to condense some of their honey, and see whether it affects the color or flavor; and if not, find what it will cost to reduce a ton of honey to 1500 lbs. Perhaps it

will pay to have small vacuum-pans, and work the air-pumps by hand or horse power. This is extracting the water from honey by power instead of heat.

J. F. MCINTYRE.

Fillmore, Cal., Feb. 16.

[Friend M., I want to thank you for having given me my first clear idea of what is meant by "vacuum-pans." We second your request. Perhaps somebody who has used the arrangement will tell us more about it.]

#### DISCOURAGEMENTS OF BEE-KEEPING.

##### AN OLD VETERAN RECOUNTS THEM.

[Read at the State Bee-Keepers' Association, Madison, Wis.]

As the bright side of bee-keeping is the one generally presented to the public, some items from the other, or discouraging side, ought to be in order. When I commenced keeping bees 34 years ago, we had no bee-literature of any account to aid us, but we had plenty of good pasturage, any amount of basswood timber, wild flowers, buckwheat, and but few bee-keepers, and nearly every season seemed to be a good one for honey. Honey bore a good price, foul brood was unknown, and even the moth-miller had not found us out. The prejudice against bee-keepers by farmers, fruit-growers, and others, of late years existing, was then never mentioned; but those good old times are past, and the favorable conditions then existing can not again be enjoyed. This thought discourages one. The improvements and the advance made in bee-keeping since I began have been marvelous. The movable frame, the extractor, comb-foundation mills, sections, cases, smokers, veils, different races of bees, large factories for the manufacture of supplies, and the excellent literature pertaining to bee-keeping, now available, have boomed bee-keeping. All items relating to big honey-yields and rapid increase have been given, copied in agricultural and other papers. These have advertised the business till the result has been that we harvested a countless throng of bee-keepers. As the saying is, the woods are full of them, and, we might also add, the open ground too.

Of the thousands who have commenced bee-keeping in the last few years, I am satisfied that, had they known fully the chances and the actual conditions as they existed, half would have turned their attention to something else; but, being captivated by the big reports of some of the few most favorably situated, to achieve success they embarked in the venture, not considering the much larger number who had made a failure of the business.

This big crop of bee-keepers is discouraging to me. It may speak well for the advancement of the pursuit and the cheapening of honey for the masses; but every accession to our ranks is one more rival in the field to lower prices and share with us the pasturage. A large part of the beginners are inclined to cut prices, which are already low enough.

Another discouraging feature: While bee-keepers are increasing, pasturage is not. Basswood is fast disappearing; buckwheat is not raised nearly as much as formerly; wild flowers are disappearing before the plow, sheep, and cattle. One honey source, white clover, is on the increase, but is an uncertain honey-plant in our climate.

Fifteen years ago I had, including the home yard, bees in six places, the furthest yard being ten miles from home, with scarcely a rival yard that would lessen my crop; but for sever-

al years past, bee-keepers have increased to such an extent that last season I occupied only the home yard, and that was badly trenched upon by surrounding yards. The rest of my bees, 200 colonies, outside of those kept at home, I moved 28 miles, attempting to get them where there was a reasonable chance to make them pay expenses.

Another cause for discouragement is the appearance of foul brood at several places in our State.

The price of honey is also discouraging. This year, of all others, it would seem that honey ought to sell on sight; but many have found it hard to dispose of the little crop that they did have at any thing of a fair price. Honey is not like the staple farm products that have a fixed market price, and that will sell any day when taken to market. You have to look for your honey customer, and then he is not always easily found. I have looked for him sometimes at home, and sometimes abroad; and I have looked as far, even, as New York, and then not found him.

Still another discouraging feature is, that my bees went into winter quarters light in both bees and stores. I am not sanguine of being able to make a very good report for 1891, even should the season be fairly favorable.

The Bee-keepers' Union has been a comfort to me in the past; in fact, it sprang into life through my need, and came to my defense for its first work, and is still doing for the fraternity and individuals valuable service. Long may its officers live, and long may its banners wave; but I am discouraged because it does not number thousands where it numbers hundreds. In justice to ourselves as bee-keepers, it stands us in hand to be as prompt to chronicle losses and discouragements as we are items of success. I know it is more pleasant to tell of success than failure. We all like to tell a big story if a true one. But our interests demand both sides; so, let us see to it that we report both sides faithfully.

S. I. FREEBORN.

Ithaca, Wis.

[Friend F., we are glad to hear from you; and we are glad, also, to have you give us plain hard facts, gleaned from years of experience; but even if it be all true, exactly as you state it, bee culture does not differ very much from most other rural industries. They all have their ups and downs, and in one sense the field is pretty well crowded. A great army of people are looking in vain for something to do that is sure pay and has no discouragements, as you tell of. They do not find it. While in your State, and through the basswood region in your vicinity, some of your neighbors were so enthusiastic as to say that they never had a failure in basswood; but the failure has come already. Now, I do not believe, dear brother, that it will pay for many of us, at least, to become discouraged and give up. One of our bee-men was in to see us yesterday. He became discouraged because bee-keeping did not pay, and so he went into evaporating fruit. By the time he had a good crop, and a great lot on hand, the prices went down so he could not sell. Last winter he sold his evaporated apples for 5 c. per lb. because he was discouraged. This winter he said he could have sold them readily for 15 cts., which would have made a good profit, and paid a good interest during the time he held them. But he is now out of the fruit business. Let us do the best we can, year by year, leaving no stone unturned, as Doolittle says, to secure a crop; and I think we shall, as a general thing, fare as well as the rest of mankind. It is true, it is not well to have too many beekeepers so crowded together as to overstock the

locality. But I think this state of affairs will not continue long. The fittest will survive, and the others will give it up.]

### THE NEW DOVETAILED HIVES.

TOO MUCH OR TOO LITTLE FOUNDATION: A SUGGESTION FOR EMMA WILSON.

*Friend Root:*—I have to-day finished nailing up 250 dovetailed bodies, 100 dovetailed supers; covers, 100 each, and bottom-boards, and 2000 Hoffman frames, all of the latter nicely wired. I have had only a boy 13 years old to help me, and have gone out selling honey and vegetables on an average of at least once a week; so you see I have been quite busy. All the above is for my individual use the coming season, and I hope to fill them with full swarms by natural swarming. I should like to say right here, that, although I have dealt with you extensively every year for over ten years, this last lot of goods has been the best, and has given me more satisfaction than any I ever bought of you before. You certainly are improving all the time in workmanship.

Now for a little chat in regard to several topics. I should like to ask those who advocate the use of less foundation, if they were offered all they could use free of cost would they not use full sheets of it in the brood-chamber, and full-sized starters in the sections? I am sure I would, for one, *every time*.

Your remarks on page 34, in regard to taking a partner, fit my case exactly. Three times in life I have been broken up by doing so, and I propose hereafter to have only wife and children as partners.

Tell Miss Emma Wilson to try an apron made of the waterproof cloth, recommended for hotbeds—the lighter quality. I think she will like it. It will be a little stiff at first, but soon gets limber and pliable, especially after being washed.

I have used bricks for recording the different operations in the apiary for years past, and prefer them to a memorandum-book.

### KEENEY WIRING VERY SATISFACTORY.

As stated elsewhere, I have just finished wiring 2000 Hoffman frames, and I am surprised that any one finds fault with the bent nails. I think I have used, or tried, every method of wiring mentioned in the bee-journals since wiring frames has been invented, and none of them equals the Keeney plan, in my estimation. Perhaps friend Bunch (see page 100) nailed his frames together *first*, before putting in the wire nails and bending them; if he did, let him take 1½-inch No. 18 wire nails; drive them through at the proper place, and then with small-sized pliers give them a twist. He will soon get the hang of it, and he will never nail the frames together again before putting the wire nails in. I can make them very uniform and yet twist them faster than a smart man or boy can drive the nails through.

### HONEY FOR CHILDREN: HOW TO GIVE IT TO THEM ON SQUARES OF PAPER.

I have two little tots, aged 5 and 3 years respectively. They take a great interest in my work, and "want to help pa" every way in their power. I feel sure it would do you good, friend R., if you could see them come into the workshop every morning about nine o'clock, each with a little square of paper, and say, "Honey, papa;" and then I go to the barrel of candied honey and dig out a suitable quantity. It makes me smile to hear their "thanky, papa," and see them sit down by the stove and

enjoy it. In the afternoon they repeat the same, as regularly as clockwork, from day to day. Some may think they might eat too much of it, and so get tired of it; but care is taken not to give too much at any one time. I find that, when given honey in that way regularly, they care little or nothing for the ordinary candies we buy; and as for health, if you can find healthier, rosier, or more active children anywhere, I should like to see them; and, by the way, friend R., I have a theory that, if they grow up accustomed to the daily use of such pure sweets as honey, they will never require a taste or fondness for stimulants or intoxicating liquors. Have you ever observed that any one given over to the use of intoxicants seldom or never uses sweets in any form? When a young man I met at social gatherings many friends and acquaintances; and when refreshments were served I noticed on quite a number of occasions that three of the young men present never touched any thing sweet, but were very fond of pickles and stimulating dishes. In a few years every one of them died of *delirium tremens*, from excessive use of intoxicants taken in secret. Since then I have found it the rule that, in 99 cases out of 100, those that use sweets rarely care for stimulants, and *vice versa*.

#### SELLING EXTRACTED HONEY LOW, AND WHY.

I have just received a letter from friend Baldridge, of St. Charles, Ills., in which he (in a friendly way, of course), scores me for selling extracted honey at retail at 10 cents per pound, and says that he gets 20 cents for all he sells, and that, if he had to take 10 cents, it would drive him out of the business; and he further states that it is more profitable to him to buy extracted honey at 5 to 8 cents a pound than to raise it. Now, I know that friend B. sells gilt-edged honey, and he has, besides, a very taking way with his customers, and he keeps the custom he makes, too, which shows that he deals fairly and squarely; but notwithstanding all this, I do not believe he could sell in my vicinity at any better figures than I do. My customers are mainly coal-miners, and laborers in large manufacturing establishments; and if you say to them 20 cents per pound for honey, they will laugh at you and do without it. A few will buy it at that price for colds, and to use as medicine; but as food, never. I have made it a point to go to every house, street by street; and if this article were not too long already I could give some pointers too, as to how to sell honey to those who think it too good, and too high priced for food.

You have to suit your prices to the class of customers you deal with; for there are some few who will pay any price asked, provided they get what they want. Another thing, too, is that no basswood and but little white-clover honey is raised here. Our chief source of honey is fall flowers, and it is necessarily more or less dark. Though Spanish needle and smartweed yield clear nice-looking honey of excellent quality, it is not gilt-edge or superfine, and must bring a lower price, both wholesale and retail, than the finer-looking grades of white clover and basswood raised elsewhere.

Belleville, Ill., Feb. 7. E. T. FLANAGAN.

[Friend F., your suggestion is good in regard to giving the children honey instead of candy. For the past four or five weeks we have been having excellent maple molasses, and I fear I have been using more of it than is conducive to my health. A day or two ago I thought I would substitute honey, and see whether it answered any better, and I was agreeably surprised that, when taken in considerable quan-

ties, with its complement, a glass of milk, it seemed to be much more wholesome, at least to myself, than the maple syrup. Very likely both are nature's sweets, designed by God for human food; but the holy Scriptures lay very much more stress on milk and honey than on any other kind of sweet.]

#### MOISTURE IN BEE-CELLARS.

Doolittle reviews the matter.

On page 877 the editor adds quite a long footnote to what I have to say about the dampness in my bee-cellar. On the whole he is perfectly right; but his reasoning does not fully apply to the cause of dampness in bee-cellars, as he will soon see, I think, if he will stop to think a little. As he says, the cause of moisture and water collecting in drops on any surface is that of warm damp air coming in contact with a cold or cooler surface than the surrounding air. From this he reasons that, at times when the outside air is warmer than the air of the cellar, this warm air will enter the cellar through the ventilators and thus cover the walls with moisture, making all damp and wet, and thinks it is for this reason that I do not have any ventilators to my cellar. Well, now, while this might be the cause of dampness in a bee-cellar once in a while, yet in 99 cases out of 100 it has nothing to do with it. Without any ventilators whatever in my new bee-cellar, the flagging cover and the painted door at the entrance have been running down drops of water on the inside all winter, and no air from the outside has been allowed to enter. The reader will remember that, at the front end, this cellar is 3 feet under ground, while at the back end it is 9 feet. Well, the air which comes from the back end of this cellar, or, perhaps I should say, the air warmed by the lower back end of the cellar and the breath of the bees, together with the heat from their bodies, is warmer than the flagging overhead or the door at the entrance, which are affected by the cold and frost from the outside, so that, when this warmed air comes in contact with these cooler surfaces, the moisture from it is condensed on them; hence the moisture is continually trickling down on the inside. It is to be remembered that the three feet of earth between the two roofs is kept frozen the most of the winter, or the upper half of it at least, and this is the reason, or one of the reasons, that the temperature of the cellar does not vary one degree inside, although the outside temperature may vary from 30° below zero to 60 above. When it comes more steady warm weather, during the latter part of April, then I have things reversed; for at that time the inside of the cellar is cooler than the dirt and temperature outside; hence the moisture now condenses on the outside of the door and flagging. Am I not right, friend Root?

#### SUNDAY PLANNING.

It was with great interest that I read the article by friend Miller on "Planning," and your comments on the same, especially that part which touched on planning during Sunday and while in church listening to the sermon. Friend Root seems to think that Satan has *all* to do with it, but I think *not* all. There is a great difference in speakers, or in the way they present the truth. I have sat in church trying to follow a sermon which was presented so dryly, and in such a sleepy way, that I had to use all the powers which I was possessed of to keep my mind on the discourse, at least half of the time; and, again, I have listened to sermons in

which the truth was presented so pointedly and interestingly that I could not get away from it *one second*, even to think of some horse-trade or some other exciting thing that happened only yesterday, that was the theme of the whole community. While I have the highest respect for all preachers of the gospel of our Lord and Savior Jesus Christ, yet I have a lingering thought about me that some of them might be serving the master better between the plow-handles, over a bee-hive, or in other callings in life—preaching the word by their “daily lives and godly conversation,” rather than trying to preach it from the pulpit. But, really, is it contrary to God’s will to do any planning about temporal affairs on Sunday? If the Christian has placed his life and all his ways in the hands of God, willing to be led by the Spirit, and to use all of the things of this world which come to him for the honor and glory of God, so that all the success of his planning is to be put into the cause of the Master, may not his planning then be according to God’s will? What is God’s will? and what am I to think about on Sunday? About heaven and God in the way many people try to do? If so, then I feel a good deal like the heroine in “Stepping Heavenward,” where she says she does not wish to “sit on a bench in a row with others, singing through all eternity,” yet this is about as high and enlarged views as most people have of heaven. Jesus went about doing good, healing the sick, lifting up the fallen, etc.; and he did this on the Sabbath as well as on other days, and he is our great Exemplar; and if the outcome of our planning reaches out wide enough to take in all this, why say, “Not another word of it on God’s holy day”? Oh for broader views and greater enlightenment along the road toward heaven! views that reach out till they can in some measure grasp the Infinite.

#### BASSWOOD.

If I am correct, Ernest says that the basswood is more luxuriant in growth here than it is in Ohio, and I have so understood by other parties. This being the case, imagine my surprise at seeing, on page 130, that you are receiving lumber cut from logs which have grown from sprouts from the stumps of basswood trees cut only ten years ago! I know basswood is capable of doing great things; but this is altogether ahead of me. Ernest spoke of the thrifty growth of basswood near my apiary, which has grown since the year before I came here, it being all cut off at that time (1874), yet there is not a stick in all this growth that is more than seven to nine inches in diameter, that growth taking 16 years. Some, further from the apiary, that are from 30 to 35 years old, are a foot to fourteen inches through, which might do to cut; still, it would be very wasteful to do so. Would it not be well to modify that statement a little?

Borodino, N. Y.

G. M. DOOLITTLE.

[I grant, friend D., that these statements, when put side by side, look a little contradictory; but one fact, perhaps, you have overlooked. The trees which we referred to as having such a rapid growth, grew from the *parent* stumps, i. e., “on the old man’s capital.” The roots were, of course, strong, and gave the young shoot a tremendous boost, and it is not much wonder that they grew so rapidly. If I remember correctly, the basswood-trees which you showed me, and to which you allude in your article, grew from seed; i. e., they had to build up from *their own* capital. You will notice sometimes, that young locust shoots will spring up and grow with wonderful rapidity from the roots of an old tree; but they would not begin

to make half that growth if they had to depend upon their own roots. The farmers who brought us the basswood lumber in question said they had cut it from the same roots from which they had taken lumber ten years ago. If your trees grew from the stumps of old trees, then, of course, I am unable to explain it; but I am sure that the trees of *natural* growth in York State are much more thrifty than those in Ohio.] E. R. R.

[I think you are probably right, friend D., in regard to dampness in the cellar; but in regard to Sunday planning, my test is this: When I plan greenhouses or other week-day matters, even though the sermon may be dry and dull to me, I feel a loss of spirituality, and conscience tells me that I am out of the straight and narrow path. Like yourself there are some sermons, or, rather, times, when it is no effort to follow the preacher at all; but sometimes Satan presses me sorely, even when *good* sermons are being preached. Perhaps my greatest temptation is to let my mind go running on some affront I have received. Then before I know it I begin to plan the letter that shall be written to so and so. Now, letting my mind go on such topics on the Sabbath does me harm, and I believe it is the Holy Spirit that tells me I had better listen with all my mind to the dryest sermon I ever heard, rather than to let my thoughts wander on week-day cares or enjoyments. Every sermon, as a rule, contains more or less Scripture texts; and if we listen to them, we shall be doing well. I agree with you, that Sunday should not be a *lazy* day; and when I have a good-sized class in jail (as I have now) I oftentimes do quite a little planning as well as praying in endeavoring to lead them to the Master.]

#### CLOSED-END FRAMES.

TESTIMONY FROM ONE WHO CONSIDERS THEM  
“UNBEARABLE AND ABOMINABLE.”

*Friend Root:*—I am completely astonished at so many testimonies in favor of the closed-end or half-closed frames. I have tried them both in Texas and Cuba, and, to own up, they are simply abominable and unbearable; furthermore, I never have known any one to try them who did not get a hatchet and reform them at the first convenient time. They positively will not do here in Cuba, no matter how expert the operator may have become in a colder country. The main reason is, genuine bee-glue, or propolis, that abounds too abundantly, and of a superior quality. In reality, it is so good for glue that, when a colony is left gluing for half a year on a stretch, its frames can be removed only in pieces by a chisel; for, before the joints will separate, the wood will split away off in some other way, and leave the edges glued as firmly as ever at the joint.

As for handling the Hoffman frame rapidly, it, of course, could be done by a Hoffman-frame man; but I should feel shabby if I saw any man handle Hoffman frames as fast as the common frames (that are in general use) can be handled by a man who has had practice enough to work rapidly. Friend E. R., the reason you get only the Hoffman side of the question testified to is because so many like myself have such a contempt for a frame that kills bees and clogs up so, that they don’t even care to give in their testimony. But it is now time that the other side of the question were being spured up; for if it keeps as silent in the future as it has during the past six months, all the beginners will have Hoffman frames, and owe their thanks to

E. R. Friend Woodward's article on page 96 should be read the second time by Southerners who think of ordering frames for the first time, for bees don't generally build perfect combs, for beginners especially.

As far as spacing is concerned, when it comes to extracted honey the Hoffman frame has no advantage, for the simple reason that there should be one or two frames less in the top box, or extracting-super, than in the brood-chamber; for example, if you use nine frames in the bottom you want only seven on top to get the best result with the least labor. Now, how about changing frames from top to bottom without first scraping all the wax and propolis off the edges that didn't touch while in the extracting-super (a sharp hatchet scrapes them for me, and then it doesn't have to be done over again)? and I have friends who advocate the same plan at home, if not in print. W. W. SOMERFORD.

San Miguel de Jaruco, Cuba, Feb. 15.

[That's pretty hard on the closed-end and Hoffman frame, friend S.; but this is what we want—a ventilation of *both* sides of the question, for all localities. Such adverse testimony is valuable. It proves that, in some localities, the propolis may be so bad as to make closed-ends "unbearable and abominable." I have never said that these frames would please everybody. On the contrary, I have hinted pretty broadly all along that the loose frame would never be abandoned; that one frame would be used about as much as the other. Beginners won't be hoodwinked, as you intimate—they will take what their supply-dealer recommends them to; and that, at the present as well as in the past, is the loose hanging frame. Our standard frame, the frame that is sent out in hive combinations, is the loose L frame. For *special orders* only, we send fixed frames; i. e., closed-end or Hoffman, and generally those are in small lots for "samples to test."

It may be you haven't acquired the knack of handling these fixed frames; still, I should more think your two localities wouldn't admit of their use on account of the extra amount of propolis. Dr. Mason insists that closed ends wouldn't do for him. But all this doesn't argue that there are not a good many other bee-keepers who can use them. No, I won't take back one word that I said in favor of them where I saw them used successfully. In many hands they are a grand success. If propolis is so bad with you, I don't see how you can use sections or even wide frames. Why, they would be stuck together so badly that you would have to use a hatchet to pry them apart. If that is the case, of course you couldn't use closed-end frames. See p. 208 for the "other side."] E. R.

#### A CHEAPER METHOD OF MELTING WAX.

HOW TO CONSTRUCT A WAX-BOILER OUT OF WOOD, WITH A TIN BOTTOM.

After reading E. France's experience in melting beeswax I feel inclined to give your readers an account of a much cheaper boiler that answers the purpose very well. I have been using for some years, for a wax-rendering boiler, a wooden box about two feet square and one foot deep, with a tin bottom. The box was made several years ago, as part of an outfit for making foundation on plaster-of-Paris casts. It is made of pine lumber; and in order to get the corners water-tight, the end pieces are let into gains or grooves, across near the ends of the side pieces, and well nailed. The tin bottom should be about an inch larger all around than

the outside of the box. To put the bottom on so that it will not leak, paint the bottom edge of the box heavily with thick white lead and oil, before nailing on the tin. Then turn up the projecting margin of tin and tack it securely to the wood, having previously used a liberal supply of white lead in this joint also.

The box, or boiler, is used on an old cook-stove in the shop. The combs and cappings are put into a sack of strainer cloth. And I may remark here, that a large bulk of combs can be put into a moderate-sized sack when the lower part of the latter is immersed in boiling water. After the comb is all in and much of it melted, the sack should be tied up, and a slatted honey-board placed over it. This can be kept down under water, and a strong pressure brought to bear on the sack of comb by the use of a small pole or prop cut just long enough so that, when one end is pressed down firmly on the honey-board, the other end will rest against the ceiling above. At this stage of the proceedings, if the water is boiling I remove the fire from the stove, as a precaution against the wax boiling over, and leave it to cool. The wax can be remelted in more clean water—the more water the better—and allowed to cool slowly, if a very light color is desired.

Farina, Ill., Jan. 6.

T. P. ANDREWS.

[We used to employ the same method of melting wax in a common second-rate wash-boiler. A boiler could be made in the way you describe, and such a receptacle would be a capital thing in which to scald foul-broody hives. A boiler made entirely of tin, and large enough for the purpose, would be rather too expensive.]

#### GERMAN CARP AND CARP-PONDS.

SOME INTERESTING FACTS.

Every pond should be so arranged that the whole of the water can be drawn off, not leaving a gill in any one place. The water should be drawn yearly, between Dec. 1 and April 1, taking out every fish, frog, tadpole, etc. Young carp a year old will eat the fish-eggs; after this, instinct teaches them not to eat them; hence, breeding-fish should be kept by themselves. The large tadpole that lives through the winter is a dear lover of fish-eggs, and will leave but very few to hatch. From three pair of breeding-fish, at two years old, in 1886, I got 1500 young; and as I had more grass around the pond, and these fish got larger, I had more and more young fish, until in 1889, it was an innumerable multitude. Because of sickness in 1890, the pond was not drawn off till June, and not a single young fish was seen. This utter failure was wholly chargeable to the large tadpole. I have three ponds—one for breeding, one for those I wish to eat, the other for small fry. Last year one pond stood all the year without water. This year it will be equal to a new one, and another pond will go dry this year, etc. One acre of new pond is worth as much for growth of fish as four acres of three or four year old pond. I can not agree with my friend that his fat carp were made so by preying upon other fish. It was another breed that had eaten the young fish. All the millponds, creeks, and rivers in this country are getting well stocked with carp from broken carp-ponds, and many of them are very fine, weighing from six to ten lbs. or more. It is very pretty to see the young fish eating biscuits and light bread thrown to them after they have been trained awhile. Hundreds may be seen at a time, reminding me of bees swarming. Selling fish for stocking other ponds has more than paid all

cost. But to raise them for food purposes could hardly be made a paying business unless the ponds were very large, and could be rested every other year.

N. JEF. JONES.

Design, Pitts. Co., Va.

[We have given place to the above principally because it speaks of the fact that the German carp is now to be found generally in our brooks and mill-ponds. If this is true, then the work of the fish-commissioners, in scattering German carp throughout our land, has been a good one. Inasmuch as we have published a book on carp culture, and there is a periodical devoted to the subject—namely, *National Journal of Carp Culture*, Alliance, O., we think we shall have to devote our space to other subjects for the future.]

## OUR QUESTION-BOX,

With Replies from our best Authorities on Bees.

QUESTION 180. *Please tell how much ventilation bees need when wintered outdoors, and how you would secure it.*

We leave the full fly entrance open.

Illinois. N. W. C. MRS. L. HARRISON.

The entrance is all the ventilation they need.

Louisiana. E. C. P. L. VIALON.

Just how much they need is a question I am not prepared to answer. I have had them winter well with *much* and also with *little*.

Vermont. N. W. A. E. MANUM.

Only that from the usual opening, and this should be restricted when very cold. To secure this, keep dead bees out.

Michigan. C. A. J. COOK.

We remove the cloth and use a straw mat over the frames, with absorbents in the cap or upper story. We give but little lower ventilation.

Illinois. N. W. DADANT & SON.

I never winter outdoors. If I did I believe I would put a two-inch rim between the hive and bottom-board, and close up tight, but open the entrance when warm enough for the bees to fly.

Ohio. N. W. A. B. MASON.

We leave, at the bottom, six  $\frac{3}{8}$ -inch holes open all winter, just the same as we have in summer. In summer we have a  $\frac{1}{2}$ -inch hole through the front side of the hive, half way up. That hole we close in winter.

Wisconsin. S. W. E. FRANCE.

I don't know. I'm trying four outdoors, pretty well covered up, all but the entrance, and that's 12x2. Ought to kill them, oughtn't it? Likely it will. But then, I can say it's the climate.

Illinois. N. C. C. MILLER.

I have wintered outdoors successfully several winters, with no other ventilation than the summer entrance, which was  $\frac{3}{8}$  inch high across the front of the hive, and again lost heavily with the same treatment.

Wisconsin. S. W. S. I. FREEBORN.

We abandoned outdoor wintering some years ago, consequently we are not up to the times on this subject. I am under the impression, however, that they do not need nearly so much as is usually given them.

New York. C. P. H. ELWOOD.

I have had excellent results by placing a rim under each hive, having an air capacity of about 500 cubic inches, and giving them a generous entrance. A close-fitting cover is on the hives, but no rags or quilts.

New York. E.

RAMBLER.

About the same as in warm weather, on the summer stands, and secured in the same way by having the entrance wide open. I think favorably of an empty chamber below the combs for wintering out of doors as well as in.

Ohio. N. W.

H. R. BOARDMAN.

I ventilate by an entrance  $\frac{3}{4}$  by at least 8 inches long—usually the full width of the hive. If upward ventilation is allowed—I want none of it—the entrance should not be so large. The hive should be air-tight on top, entrance large, and hive well packed on all sides.

Illinois. N. C.

J. A. GREEN.

Make the entrance  $\frac{3}{4}$  by 12 inches. Lean a board up over the entrance, so that no cold winds nor the sun can beat in at the entrance, also to keep snow and ice from forming there, and you will have things fixed about right, according to the opinion of Doolittle.

New York. C.

G. M. DOOLITTLE.

When I have seen many colonies of bees winter nicely under a snowdrift in old box hives, with no opening except three or four little triangular notches sawed in the bottom of one of the side boards, I do not know why a gimlet-hole will not give air enough, and that may be in the top, bottom, or side of the hive. I have seen much of ventilation, but I do not know much.

California. S.

R. WILKIN.

I never could discover that bees needed any ventilation, in doors or out. At present I have over 60 colonies, of my 350, in a cellar which is half full of honey barrels and kegs, and I close it up tight without any ventilation whatever, only as I open the door to go down and see how they are coming on. This winter they are extremely quiet, and appear to be wintering perfectly. Bees flew lively outdoors yesterday, December 22, the shortest day in the year.

Michigan. S. W.

JAMES HEDDON.

Very frequently I secure it by leaving the entrance just as it was through the summer. I like pretty well to put a special bottom-board under for wintering, which gives two inches more space below. This space is filled up with dry sawdust, except a little in front. In front there is an open chamber about 2x2x6, closed from the outer world by a movable block. Between the block and the corner of the bottom-board there is a vertical entrance, two inches high by three-eighths wide, and fenced against mice by a row of wire nails.

Ohio. N. W.

E. E. HASTY.

Confine your bees to the brood-chamber, which cover with a board or boards, a honey-board, or something like it. Keep these boards warm by putting on a straw mat or its equivalent, because the bees cluster below, and would chill without this precaution. Have plenty of honey in your combs, with the heaviest toward the center, and a winter passageway through everyone; full width of the entrance open, with a two-inch strip under the back of the hive, so that all moisture is bound to run out; otherwise it will be absorbed by the combs, sour the honey and pollen, and create dysentery.

Ohio. S. W.

C. F. MUTH.

[From the above, the general tendency seems to be giving at least as much room in winter at

the entrance as they have in the summer time; and, if any thing, rather more. To all this I agree, only that I would not allow any sort of entrance that would permit mice to get in. I do not believe it will pay to undertake to contract and enlarge entrances as the weather changes. We once tried it on quite a good many chaff hives; and those that had the entrance open full width all winter long did a good deal better than where any kind of contraction was practiced. A very small entrance will, of course, answer, providing the bees have upward ventilation—leaving the surplus arrangements on all winter, and such like arrangements. Friend Green is very emphatic in saying "the hive should be air-tight on top." Well, I think likely he is right, providing the entrance be large enough, or that there are other large openings through the bottom-board. Several mention having an empty chamber under the brood-combs. I am inclined to think this is a very good arrangement where you have movable bottom-boards. I rather think that ordinary cellars or caves will answer very well without any special arrangement at all being made for ventilation, and a great many bee-hives will also have all the ventilating cracks and holes that can be needed. There should, however, be some opening for bees to pass in and out whenever the weather is warm. With a loose, poorly made hive, if this opening is sufficient to let one bee pass, and does not get obstructed, it will do very well.] A. I. R.

## HEADS OF GRAIN

FROM DIFFERENT FIELDS.

SHALL WE CONTINUE TO SEND GLEANINGS IN BEE CULTURE?

No, don't. I've got enough. The contributions of some of the writers for GLEANINGS are good, and with them I find no fault; others I do find fault with—*Rambler*, for instance. The *Home* talks are obnoxious. To take a passage of Scripture, and branch off on to such boasting about a \$400 team, a big factory, and so many hands to see after, and so much property, and me and mine, and big I, doesn't suit me.

Burnville, Ark., Dec. 22. H. C. M. BRALEY.

[Well, good friend B., the above would be rather discouraging, to be sure, if it were not for the great flood of *approving* letters that come in every mail; and, besides, there is another encouraging thought—you put our good friend *Rambler* down with the author of the *Home Papers*. I always *did* like to be in good company. Joking aside, however, I want to thank you for your criticism, even if it be very plain and rather severe. It has many times occurred to me that those who do not feel especially friendly might look at my *Home* talks in just the way you have. I did not mean to boast of our big team. I simply wanted to encourage the idea of having horses adequate to the work to be performed, and giving them good care. I do believe that many of our farmers would accomplish more, and do it *cheaper*, by having heavier horses, well cared for; and instead of the big "I" it was and *is* my purpose to exalt only Christ Jesus. The *Home Papers*, with all their imperfections (and I see them as plainly, I believe, as almost any one does), have been the means of doing good, through Christ Jesus, and to him alone be all the honor and praise. My old pastor, in his prayer one Sunday morning, said, "O Lord, we thank thee for our enemies, because they tell us

our faults when our friends will not." Now, dear brother, I do not want to consider you as an enemy as we bid you good-by. On the contrary, may God speed you in all that is good and pure and holy. May be we shall become better *acquainted* some time; and I hope and pray that we may both become better men as the years go on.]

HOW TO KEEP DRIED FRUIT FROM THE MOTH AND MILLERS.

*Mr. Root*:—We have had a great deal of trouble every year in keeping dried fruit from the millers, or moths. We should like to hear through your valuable paper how to keep the fruit until spring from becoming wormy. We have been keeping them in barrels lined with paper, and tightly covered, but have not had any success. We are thinking of trying a new plan of putting the fruit, first in a burlap sack, then slipping it loosely into a bag made of oil cloth. We should like to hear the experience of some of the readers. BYRON H. WILEY.

Fillmore, Cal., Jan. 27.

[We sent the above to Prof. Cook, who replies as follows:]

If Mr. Wiley will put his fruit in paper sacks and then tie tightly, he will escape the insects surely, unless the eggs are laid before the fruit is put into the sacks. He says he puts his dried fruit in barrels lined with paper, and yet suffers loss. I think in this case the female moths lay their eggs on the fruit before it is put into the barrels. In such cases, if a small hole were bored in one end of the barrel, and tightly corked, it would be easy to free the apples or fruit of insects by use of bi-sulphide of carbon. Withdraw the cork, turn in half a pint of the liquid, and quickly cork up the hole. The liquid would destroy the insects, and would do no harm to the fruit. This would be a very cheap and convenient cure for the evil. It should be remembered that this liquid vaporizes very quickly, and that the vapor is very inflammable, and very explosive when mixed with air. In this case the barrels could be easily moved out of doors, or be kept in a room where no fire or lighted cigar, etc., is ever taken. I would use paper sacks for storing, and, in case of attack, I would use bi-sulphide of carbon to destroy the mischief-makers. Bi-sulphide of carbon very soon escapes if permitted; and it is so odorous that its presence, even in very small quantities, is sure of detection. It volatilizes so completely, that, even if thrown into a flour-bin, it all evaporates and the flour is uninjured.

A. J. COOK.

Agricultural College, Mich., Feb. 6.

RAMBLER'S VISIT TO THE BAY STATE APIARY.

*Friend Root*:—I have read *Rambler's* visit to the Bay State Apiary with a good deal of interest. As you seem to have a wrong impression regarding some things, I will try to correct them. I judge by your foot-notes to *Rambler's* article that you have an idea that I am an inveterate smoker as well as Bro. Pratt. You are wrong in this. I do not use tobacco in any form, except to introduce queens. Although I use several pounds each season of the vile weed, it always has a bad taste to me.

You want to know whether we did not get the "plantain leaf" idea from you. Guess not. We have used it nearly 30 years, and used it, friend R., when you used to send orders to the Bay State Apiary for queens. That, I believe, was a good many years before you published a bee-paper. I give you a cordial invitation, friend R., to visit the Bay State Apiary whenever you can find it convenient to do so. You will see and hear about a good many things that have

not been seen in print. You need not look for Alley in a bar-room, nor will you find him in the shade of a tree sucking an old pipe.

Say to Rambler that there is fourteen months difference in the ages of the "twins" he has pictured "eating" honey. These two little queers take a good deal of my time. They get "grandpa" up pretty early in the morning—a good deal earlier, sometimes, than he wants to get up.

H. ALLEY.

Wenham, Mass.

[We are exceedingly glad, friend A., to know that you are not a tobacco-user. Perhaps I got my wrong impression from the fact that some one mentioned your using large quantities of tobacco in smoking your bees. We are glad to know that you are on our side of both kinds of temperance—whisky and tobacco.]

#### SOMETHING FOR FLORIDA BEE-KEEPERS.

As we bee-keepers in Florida have no paper that reaches, perhaps, more bee-keepers interested in making an effort to prepare for an exhibit at the World's Fair at Chicago than GLEANINGS, if permissible I should like to hear personally from each Florida reader who is a bee-keeper, as to what he thinks of forming a State Bee-keepers' Association at as early a date as possible, to meet at the capital of the State some time during the session of the legislature, so that, if possible, we might prevail on it for some assistance in making and caring for such an exhibit; and, further, to state what amount of honey and fixtures you each could prepare for exhibition. We shall certainly have to unite, first, in a State association of bee-keepers before we can arrange for an exhibit that would bring forth any thing like the resources of the State. I should like to hear the views of all the Florida bee-keepers in this matter. It is none too soon to begin the preparation.

JOHN CRAYCRAFT.

Aster Park, Fla., Feb. 28.

#### FEEDING BEES ARTIFICIAL POLLEN WHILE IN THE HIVE: AN INTERESTING CASE.

It seems as if we were going to have a late spring, and a bad time for bees to carry in pollen; and why not take a hint from the following circumstance and put flour on the top of the hives for pollen? My father is 80 odd years old, and he told me that one of his neighbors, some 70 years ago, set a log hive of bees in an old barrel half full of wheat, to keep them out of the cold; and when he took them out of the barrel in the spring they were all right, and had eaten the wheat under the hive until the bran was two or three inches deep.

J. D. WHITTENBURG.

Marshfield, Mo., March 3.

[Friend W., your story sounds pretty strong, and yet it may be true. When bees are destitute of pollen they will take hold of a great variety of substances; and as they eat wheat flour with avidity when put out in the open air, it is possible that they learn how to dig the flour out of the wheat and thus raise brood.]

#### PAINTED CLOTH AN EXCELLENT SUBSTITUTE FOR TIN.

I see there have been some inquiries in regard to painted cloth for hive-covers; and not seeing any thing from any one who has used painted cloths, I venture to give my experience with it. Four years ago I was making some chaff hives; and not having lumber wide enough for half the roof, I used narrow boards and painted them. Then I tacked on some Atlantic A sheeting on the green paint, then painted the

sheeting. I have painted them once since. They have been exposed to the weather, winter and summer, ever since, and I consider them good for a good while yet, so far as the cloth is concerned. In these times of high tariff on tin, I think it would be well for those who use tin for hive-covers to try a few cloth ones and keep them painted. If they do, I think they will be pleased with the result. I also believe it would make a better roof for dwellings than a good deal of this roofing that is advertised. If Dr. Miller will try painted cloth he will find it far superior to oil cloth.

JOHN ANDERSON.

Oriskany Falls, N. Y., Feb. 28.

[You have given just the fact we wanted. Now, who else can testify? So far the evidence shows that painted cloth will answer. But the great thing in its favor is cheapness, tariff or no tariff. Painting the wood first, before the cloth is tacked on, might have the effect of gluing it so firmly to the wood that it would be less likely to receive tears or injury.]

#### MICHIGAN APIARIES: STATISTICS FOR 1889-'90.

According to the Michigan Crop Report of Jan. 1, 1891, the farm statistics for 1889-'90 returned last spring by supervisors furnish the following figures: The number of apiarists in the State in the spring of 1890 was 5903. The number of colonies of bees on hand in the fall of 1889 was 77,602, and the number at the time of taking the assessment last spring was 68,404. The number of colonies wintered in cellars was 17,169; in chaff hives, 28,424; in bee-houses, 566; covered with sawdust, 316; otherwise protected, 1810; with no protection, 21,987; protection not reported, 7330.

In 1889, 68,440 colonies made 1,192,112 lbs. of comb honey, and 23,349 colonies produced 271,564 lbs. of extracted honey. The number of lbs. of wax produced in 1889 was 9625.

Compared with the statistics of the previous year there is an increase of 1416 in the number of apiarists; of 23,744 in the number of colonies on hand in the fall, and of 22,891 in the number on hand in the spring. The quantity of comb honey produced in 1889 was 632,310 lbs. greater than reported for 1888, and the quantity of extracted honey was 173,964 lbs. greater in the latter than in the former year.

Concord, Mich.

MANLY SHOTWELL.

[There (if reliable, and we should think they were not far from right), these statistics are interesting and valuable. What is the reason that other States don't do likewise? If they did we could then know pretty accurately the number of colonies, etc., in the United States. On an average, then, each Michigan bee-keeper owned, in 1890, 13 colonies. In 1889 he secured on an average, from each colony, 17 lbs. of comb honey and 11 lbs. of extracted per colony, or 28 lbs. of honey in all; but 1889 was a rather poor season all over the country, especially for Michigan.]

#### THICK TOP-BARS USED SUCCESSFULLY FOR EIGHT YEARS.

There has been considerable said in GLEANINGS for and against heavy top-bars. I will give you my testimony in favor of them. When I commenced bee-keeping I made twenty-five hives, all with heavy top-bar frames. With the increase of my apiary, and other work, I did not have time to make the hives I wanted, so I ordered 30 Simplicity hives, so I had two kinds of top-bars. The heavy were  $\frac{3}{4}$  by 1 inch, spaced  $1\frac{1}{2}$  from center to center, with  $\frac{3}{8}$  space between frames and super. I used it six seasons and never was bothered with burr or

brace combs. The light frames were spaced the same; and when I took the super off the first hive, the whole of the brood-chamber came with it. In taking off some of the supers I had to lift them up with one hand, and pry the frames loose from the super with a screw-driver.

W. J. RUSSELL.

Philmont, Kan., Feb. 8.

[You have given one valuable point; viz., with thick top-bars one inch wide by  $\frac{3}{8}$  inch thick, even with as large a bee-space as  $\frac{3}{8}$  inch, no burr-combs will result, even after 8 years. We now know that, by reducing the bee space to a scant quarter-inch, and using fixed distances, top-bars as thick as  $\frac{1}{2}$  inch will do, or possibly less. Let those who do not like those extra-thick bars, use a lesser bee-space and note the result.]

#### REGULATING SPEED BY THE SLIPPING OF THE BELT.

On page 33 you give the experience of one of your boys in changing the speed of machinery. Is not that plan rather hard on the belt, as the change in speed must be caused by the limited amount of belt contact with driver? The driver being constant, the belt speed must be the same, or nearly the same, and the loss in speed must be due to the slip and consequent greater friction on one edge of the belt, which would mean a shorter life for the same; and while it might answer for a temporary expedient it would look to a man in the woods as though the true economy would result in putting in the cones.

A. R. KIBBE.

New Richmond, Wis., Jan. 7.

[We have regulated the speed on one of our presses—a small one—with a slipping belt, as described in GLEANINGS, for over 10 years, and the same belt is in use yet. We have adopted the same arrangement on a larger platen press—a half-medium—with entire success. The secret lies in the fact that low speed and small power are required. Cones would certainly have to be used where something over one-horse-power work or high speed is required, or on lathe-work for screw-cutting. For small presses the slipping of the belt answers perfectly.]

#### A LADY WHO NOT ONLY DOES NOT WEAR GLOVES, BUT WORKS AMONG THE BEES WITH BARE HANDS AND ARMS.

I see in GLEANINGS that you wanted to hear from other ladies who work among the bees. I put on a hat and veil, push my sleeves up as far as they will go, so the bees can't go up inside of them. They are not so apt to sting my arms with my sleeves up as with them down. A few stings on the hands and arms will get well anyhow. I don't wear gloves, for I want my hands free from any thing of the kind.

I think if Miss Wilson will get some heavy jeans and make an apron, the honey will not run through and soil the dress. It might be "bunglesome" and warm. I do all kinds of work that are done among the bees, and help put up supplies; in fact, every thing but nailing up the hives. I do almost all of the painting and all of my housework—washing, and every thing. I have four small children to tend to.

MRS. S. D. COX.

Washington, Ind., Feb. 20.

[Very good, Mrs. C. I, too, should prefer to have my hands and arms bare of every thing, providing I could work with bees when they are gathering honey, and every thing is peaceful and quiet. One who sells bees and queens, however, and is therefore obliged to overhaul hives both in season and out of season, could not well manage in the way you suggest.]

#### ANOTHER CLAM-SHELL IDEA: USING SHELLS INSTEAD OF SLATE TABLETS.

My plan for keeping record of bees is to use two half clam-shells instead of a slate. I keep one on the front of each hive, in which I write the age of the queen and such other data as I want to go into my book. In the other, on the back end of the hive, I write work done and when, condition, etc. I use a leadpencil, and when a shell is full I pick up another, or rub out with a wet cloth or sponge, and begin again. I live immediately on Lemon Bay, where clams are more plentiful than any thing else (unless it is fish), and clam-shells are not expensive. They are not flat, like a slate, being rounding, but are just as smooth inside, and as nice to write in. I turn the flat (or open) side down, which lies snug on the hive-cover, so that no water nor any thing else can get under them. They are light, not much in the way, not easily knocked off, and are rather pretty than otherwise.

J. H. HILL.

Venice, Manatee Co., Fla., Feb. 21.

#### WHY JAPANESE BUCKWHEAT IS SUPERIOR TO THE SILVERHULL.

I find the Japanese buckwheat superior to the silverhull. After a trial of three seasons I have concluded to sow no other kind. One great advantage it has in this country is, that we can raise a crop early in the season, and the bees have the benefit of the blossoms when they need them so much. In the fall they do not work so much on it because they seem to prefer to gather from heartsease. I raised two crops last season—light crops, of course, on account of dry weather, but it proves that the season long enough to raise two good crops if there is enough rain. The common kind did not any earlier in the season. It will also make more flour per bushel. The miller said it was softer and ground finer. There is, however, one drawback—it is not inclined to grow as tall as the other variety.

J. T. VAN PETTEN.

Linn, Kan. Feb. 10.

#### A SMALL YIELD OF JAPANESE BUCKWHEAT, BUT REMARKABLE UNDER THE CIRCUMSTANCES.

My Japanese buckwheat made only ten bushels to the acre, but I thought that was good, for it never had a drop of rain after being sown until cut. My bees did fairly well, but it was so dry they kept the drones all killed off. Such a thing I never saw, and I almost had a notion to accuse the honest little fellows of killing some of their *queens* in the terrible dry spell. I lost ten or twelve for some cause, and had to give them brood and eggs three times. It seemed as if they would hatch a queen all right; but they did not get fertilized.

Wichita, Kan., Feb. 9.

EDWARD HIATT.

#### ALSIKE VERSUS OTHER CLOVER FOR WITHSTANDING FROST.

My alsike clover came through in good condition last spring, while seven acres of June clover, sown in the same field, in another part, mostly heaved out. It was all on the same kind of ground, and sown at the same time, under the same conditions. Alsike grew too rank for seed. It produced two tons per acre.

#### A SPORT FROM JAPANESE BUCKWHEAT.

Bro. Root, I have something new to tell you in regard to buckwheat, which will surprise you. When I was cutting the acre of buckwheat I grew from the half-bushel of Japanese I bought of you in 1888, I found one enormous plant, different from the rest, the straw being a little lighter in color, with more than twice as much

grain on it, apparently a hybrid. The berry was darker than the regular Japanese. I saved it separate, and got 3500 from this one plant, while 1500 was the very most I could get from any one of ten of the Japanese. I discarded all the rest. I sowed it by itself in 1889, and harvested one bushel. I sowed that on two acres, away from any other, and harvested 100 bushels. Inclosed find sample, which I have named Martin's Prolific. I will sow no other kind another year. WM. MARTIN.

Cass City, Mich., Dec. 26, 1890.

[I will say to our readers, that friend Martin wished to sell me the seed mentioned above. I advised him, however, to offer it for sale at a moderate price, and let the readers of GLEANINGS test it on a small scale. If it is really superior to the original, it will soon make itself known.]

#### JAPANESE BUCKWHEAT.

I think the Japanese Buckwheat takes the lead of any other variety. I bought four pounds of you last spring, and sowed it on an eighth of an acre, and harvested from it this fall  $6\frac{1}{2}$  bushels. Who can do better? It was sown on loamy land, greensward, with a light sprinkling of manure. P. W. SMITH.

West Braintree, Vt.

#### EIGHTVS. THE TEN FRAME L. HIVES FOR THE ROCKY MOUNTAINS.

May I ask through GLEANINGS whether eight-frame hives are satisfactory in the Rocky Mountain region? The length of time a colony must depend on its stores extends from September to the middle of May, and I am of opinion that stores less than can be made in a ten-frame brood-chamber will not last through; and that these, being short, the breeding will be correspondingly limited. My own experience is, that the largest hives yield by far the greatest amount of super honey in the season. I should like to know whether this is exceptional in Colorado and the Rocky Mountain district generally. J. A. FERGUSON.

Loveland, Col., Feb. 10.

[There are some localities where the 10-frame L. hives are better than the 8-frame, though for the great majority of localities the smaller hive is preferable. It can, of course, be made larger by adding another story. The 8-frame hive would be the better one for most localities among the Rockies.]

#### THE IMPORTANCE OF KEEPING COLONIES FED UP JUST BEFORE THE HARVEST.

I made a blunder last spring, there being no bloom for the bees until clover. I fed a good deal, but not enough. In colonies not having enough feed, the queens quit laying in some ten days before clover came. Colonies that had plenty of feed, gathered, some of them, as high as 80 lbs. to the colony, while others that had not the proper amount of feed hardly gathered enough to winter on. L. H. ROBEY.

Worthington, W. Va., Feb. 20.

#### BEEES EATING LARVÆ AND EGGS, AND THE REASON WHY.

I noticed in Stray Straws, by Dr. Miller, that he is puzzled about bees eating eggs, and the remedy for it. Last fall, a few days after the first heavy frost, I examined my bees and found that the weak colonies that had been raising brood had eaten the white larvæ, but I saw no traces of their having eaten any thing else, because I did not look further. Each larvæ was about two-thirds eaten; the rest were disap-

pearing later. Cause. It is evident to me that they were surprised by the cold, and concluded to get rid of the brood by eating it up, as they could not keep all of it warm enough to hatch, and possibly to use it for food. I noticed that only the brood around the outside of the brood-chamber was eaten, and the entrance entirely open, letting all the cold wind in. I afterward started them to laying by almost closing the entrances and feeding. Don't you think they would eat up bee-eggs under similar conditions? Dr. Miller did not state at what time of the year he would expect the eggs to disappear, nor when the queen was taken away.

GEO. E. FRADENBURG.

Kansas City, Mo., Feb. 23.

#### THE DOOLITTLE METHOD OF QUEEN-REARING A SUCCESS IN CALIFORNIA.

We are rearing nearly all our queens from the artificial cups, and, as a rule, have from one-half to four-fifths of them built out in good shape. We are not having as good success with them this spring as we did last summer and fall; but we hope feeding will make it all right soon. We may report results a little later, as we are a little short of queens for the early orders, and are rearing all queens by the grafting process in upper stories, and count on getting most of them by using the cups. Friend Doolittle also spoke of its being hard to get a queen mated from an upper story unless there was a good honey-flow. We had one mated in November, but she was in a third story, there being two queen-excluders between her and the laying queen below. H. P. LUTHER.

Redlands, Cal., Feb. 16.

#### YOUNG BEES IN SUPERS REMOVED.

I should like to ask, when you take off surplus and carry it three or four rods to get out the bees, what proportion of them will be young bees that never will get back to their own hive? J. B. WHITON.

Ithaca, Mich., Jan. 13.

[Friend W., I should say there might be ten per cent. possibly twenty, that would not find their way back. If there are other hives around, however, where they can hear the bees humming at the entrance, these young bees will get into them, and will perhaps do nearly as much good there as in their own home. I think, however, I should prefer letting them go back where they came from.]

#### ASBESTOS PAINT FOR HIVES.

In GLEANINGS for Feb. 1, page 107, we see an article cautioning us against a paint made by the Indiana Paint and Roofing Co. Have you ever known any thing of a paint known as asbestos, as to how it compares with lead?

Buffalo, N. Y., Feb. 9. A. W. LINDSEY.

[We have heard the asbestos paint talked about, but can not now remember whether it turned out favorable or not. Perhaps some of our readers can tell us about it.]

#### HIVES FOR HATCHING CHICKENS.

I should be pleased to learn through GLEANINGS whether any one ever used a hive of bees for the purpose of hatching chickens, or am I the first who discovered it, or "hatched" the idea—which? GEORGE JAMES.

Willoughby, N. S. W.

[Yes, some of our neighbors have been using some of our old hives, too old for bees—which we sold them cheap for hatching chickens. They reported that they were just the thing.]

PAINTED MUSLIN FOR HIVE-COVERS: AN ILLINOIS MAN SAYS HE HAS USED IT FOR FOUR YEARS, AND WANTS NOTHING BETTER.

In GLEANINGS, Jan. 15, you want to know whether painted muslin on covers of hives will be as good as painted tin. For 4 years I used painted muslin on my hive-covers; and my experience is, that you can find nothing better. It keeps the inside of the hive dry in any kind of weather. Paint and muslin will stick to the wood during the severest cold or warm weather. You never want to re-cover the hive; but every two years give it a coat of paint. But it will be better, where, instead of nailing, the muslin is pasted on the cover. Put the paste on the cover, then lay the cloth on; brush over with a hand-broom; cut the sides off with a sharp knife before they are dry; and, when dry, give two coats of paint. The same can be done with outside winter cases. I have muslin on the roof of my honey-house, and partly on my hen-house.

And now, friend Root, let me make a suggestion about muslin on warm or cold bed-frames. You have several objections to muslin-covered frames, and you are quite right so far; but if, before you nail the muslin on the frames, you nail a piece of poultry-netting (say four-inch mesh) on muslin over the netting, it will not make the frame much more expensive or heavy—just heavy enough so that it can't be blown about; and during a rain the cloth will not form a water-basin in the middle. I am going to try it this spring; and if you think it over you will perhaps do the same.

HENRY SCHWERDTFEGER.

Lincoln, Logan Co., Ill., Feb. 3.

OLD KEROSENE-CANS FOR CALIFORNIA HONEY, AGAIN; A HINT TO CALIFORNIANS.

I see by GLEANINGS that the honey-producers of California are complaining that buyers of their extracted honey want new cans. Let me tell them how old cans lost them one sale. I sold nearly all my honey by Nov. 15, and wrote to a commission house in Philadelphia for white-clover extracted honey. I said I preferred eastern clover to what they called California white clover. When it came it was in old rusted tin cans, and they had the word petroleum stamped in the tin on the top. No names nor marks were on the box. The honey was light amber, but had an ugly taste. I couldn't eat it, and would not offer it for sale. I returned it. The color was such that the honey should have been good in flavor.

About how many pounds of paraffine wax will it take to wax a barrel, one head out?

Pottstown, Pa.

W. W. KULP.

[These old square 60-lb. kerosene cans have done a great deal of damage to California honey—not that *all* California honey is tainted by a trace of kerosene; but the fact that *some* is, operates against the honey put up in new clean cans from the same State. The bee-keepers of California should either use new cans or else thoroughly cleanse old cans with an alkali, as explained in GLEANINGS, page 71. Use for barrels, about 10 lbs. wax or paraffine. Of course, you will not need that much for a single barrel, but you need that much to keep hot while rolling the barrel about. While you are about it you can wax several barrels.]

SNYDER'S METHOD OF CARRYING BEES INTO THE CELLAR.

In Ernest's Notes of Travel for Feb. 1, Dr. Miller says he can not carry hives of bees into the cellar without bottom-boards, and Ernest

admits trouble may come occasionally from hybrids. Now, if Dr. Miller or any one else will do as I do he will not carry those bottom-boards into the cellar, nor have any trouble from bees flying out. Let me first say right here, that I carry my bees into the cellar alone, as I have never found a man for a helper who was as good as I am alone. On a cool afternoon, when no sun is shining, I go to my hives, put a half-inch block under each corner, and in less than an hour they are in a good cluster. I then take my strap and hooks, pick up my hive and walk off with it to the cellar; and very often I have to raise the enamel cloth to see whether the bees are alive or not. In 7 years I have not had the least bit of trouble in putting them in or carrying them out. My bees are hybrids from the blacks, Italians, and Cyprians.

RUBBER GLOVES BETTER THAN ANY THING ELSE.

If Miss Emma Wilson *must* wear gloves, I would advise rubber by all means. We have used them in our family for 8 or 9 years, and like them better than all other kinds. Kid gloves or dogskin come next; I would not use buckskin, for the bees will sting them, and most of the time will lose their lives. There is but one fault with rubber gloves so far as I know; and that is, the fingers are too long. I like to use aprons when I am working with the honey, and I feel proud when I am covered from my neck to my slippers with a nice clean one.

Orion, Wis., Feb. 10.

FRED. L. SNYDER.

A COLONY OF BEES WHICH SECRETE NO PROPOLIS.

I have an anomaly in the bee-line. I have a strong colony of hybrids whose mother is a pure Italian, if I can judge by the markings. The bees use, in a manner, no propolis. They gave me two well-filled 28-lb. cases, T supers, from white clover. These were removed at the end of the flow, and replaced by a super reduced to 14, which remained on until late in the fall. Upon neither was any propolis. On the first, the white clover, they were absolutely spotless; on the latter, removed in the fall, only a bare trace, not to be observed except by scrutiny. Query: May I expect a continuance of this good quality the coming season? If so, may I expect queens raised from this queen to furnish brood having the same peculiarity? I would attribute this to want of time by reason of the flow; but all other colonies in the yard found time to glue things pretty freely. We have an abundance of the confere in this region.

Guys, Md., Feb. 2.

WM. S. ADAMS.

[We hope that you will answer your inquiry yourself, friend A., by trying some queens from this non-propolis mother. Just as soon as you know the results, please communicate the facts at once to GLEANINGS. We should like to know whether it is possible to breed a non-propolizing race of bees. But, hold a minute! Those colonies that daub propolis worst are generally excellent honey-gatherers, and usually come through the winter in splendid condition. There is this much for propolis. It seals the hives airtight—a thing quite necessary in the production of comb honey, and for successful wintering.]

ONE TON OF HONEY FROM TEN HIVES.

There was a great honey season here last year. I took one ton of honey from ten hives, and then had them in good shape for the winter. How is that for an A B C man? That is more than you have ever done; but I tell you it kept me busy all my spare time.

JAMES ROBINSON.

Buffalo, N. Y., Feb. 19.

## QUESTION 175 RECONSIDERED.

**Friend Root:**—Your respondents to question 175 do not take into consideration cool falls or a cold climate like this, which very seriously interferes with the building of comb in supers. I have never been satisfied with my yield of comb honey from fall bloom unless the season was an exceptionally warm one. The bees will gather the nectar, and store it in the comb furnished them when they can not draw out foundation in supers. For this reason I am buying an extracting outfit, and will run my apiary for extracted honey after basswood closes.

## THE HOFFMAN FRAME.

I shall order the Hoffman fixed frame, as I am thoroughly disgusted with the loose hanging frame in the Dovetailed hive. The division-board which goes with the frame is a necessity in every hive. Your addition of follower and wedge in the super will make it perfect, in my opinion. At our last State Fair there was not a good super on exhibition.

N. P. ASPINWALL.

Harrison, Minn., Jan. 7.

## THE WISCONSIN CONVENTION.

I inclose a clipping from a Madison paper, showing a little of the business done at our convention, Feb. 4 and 5.

Officers of the Wisconsin Bee-keepers' Association have been chosen as follows: President, C. A. Hatch, of Ithaca; vice-presidents, T. E. Turner, of Sussex, and Ochsner, of Prairie du Sac; recording secretary, H. Lathrop, Brownstown; corresponding secretary, J. W. Vance, Madison; treasurer, M. J. Lumb, Milton. The association decided to ask the legislature for an appropriation of \$1000 to enable to make a proper showing of Wisconsin honey at the World's fair, and otherwise advance the interests of the industry. It was also decided to secure the incorporation of the organization under the State Law.

You remember what a jovial time we had a year ago when you and Dr. Miller were with us. Our meeting this year was not as largely attended, nor was there the same enthusiasm. Our Wisconsin bee-keepers suffered a failure in crop last year, and doubtless many of them did not feel able to attend the convention. We had the great good fortune to have with us Mr. Thos. G. Newman, who made not a few friends for the Bee-keepers' Union, in whose behalf he addressed the convention. Notwithstanding the small attendance, we believe that business of great importance was transacted.

HARRY LATHROP.

Brownstown, Wis., Feb. 11.

## JAPANESE AHEAD OF ALL.

I now put the Japanese buckwheat ahead of all others. I sowed it at three different times—June 15, June 21, June 29. I raised the largest yield from that which I sowed June 29. On 3 acres I sowed  $1\frac{1}{2}$  bushels of Japanese buckwheat, which I got of A. I. Root, and on the 3 acres I had 74 bushels, making  $24\frac{1}{2}$  bushels per acre. As to bee-pasture, they worked from sunrise till 10 or 11 o'clock P.M. I will raise no other.

J. S. BUTERS.

West Brownsville, Pa., Feb. 5.

## ALFALFA FOR SORE THROAT, AGAIN.

Seeing in last GLEANINGS how good alfalfa is for a sore throat, I will say a peddler, who stopped this week, had a very sore throat. I fed him on the alfalfa honey, and it helped him at once. It works like magic. I tried it on myself yesterday, and it cured me at once. This certainly is a valuable discovery, and ought to be in the home of every family. My bees are wintering finely so far.

EDGAR BRIGGS.

Manchester Bridge, N. Y.

## A GOOD REPORT FROM CALIFORNIA.

Bees are a new thing to me, as I never had any thing to do with them till last April; then I had one swarm enter at one side of a cracker-box. The year before, the bees and I had made an agreement, that, if they would let me alone, I would let them alone. We kept that compact till last April, when I transferred them to a frame hive and commenced to build up an apiary. I will tell you how I succeeded. We commenced taking bees out of the rocks in the mountains. We took out 17, and ran our apiary up to 31 strong swarms. We had 13 new swarms come out, and sold \$93.95 worth of wax and honey, besides what three families used. It seems strange to read in GLEANINGS about feeding sugar and packing them away for the winter. Here our bees are as busy as at any time of the year to-day. I tried to time a colony that was going in loaded with pollen, but I could not count fast enough. They would alight eight and ten at a time. The manzanita is in full bloom now, and will last about six weeks.

JOSEPH W. BELL.

Valle Vista, Cal., Jan. 19.

## HOW I MANAGE MY HOME MARKET.

On page 53 is a letter from J. Handle, complaining of others supplying the home market after he had built it up. I have built up all the market for honey there is in Braceville, and have sold all I had to sell here, and could have sold more. I have had no trouble in the line he complains of. I furnish each dealer with a small show-case. The dealers here won't handle honey without a case, and they would not put other honey in my case. That helps to hold the trade here.

JOHN BURR.

Braceville, Ill.

## WHEN TO SPRAY FRUIT-TREES.

There seems to be a threatening evil to our bees from spraying fruit-trees when they are in blossom. Could there not be something done to prevent it? I take the *Farm Journal*, and that advocates very strongly the spraying of trees. Would it not be well for some one to write to the editor of that paper, and tell him to inform the people when to spray them—when the blossoms are falling? The *Farm Journal* has a large circulation throughout the United States.

GEORGE BAKER.

Poplar Ridge, N. Y., Jan. 16.

## FROM ONE TO FOUR IN 30 DAYS.

Last summer I had a swarm shipped to me the 19th of April. They swarmed the 31st of May, and again the 27th of June, and the young swarm swarmed the 30th of June, so I got three good young swarms from one.

W. F. NAYLOR.

Wrightstown, Minn., Dec. 22.

## THE EFFECT OF IRON UTENSILS ON WAX.

I bought some 50 lbs. of dark-colored wax some years ago, supposing that I could clean it; but I found it permanently colored, being rendered in an iron kettle, and left to stand therein for weeks, so it is not salable.

Hayesville, O. H. BUTCHER.

Please tell me what causes the bees to cut up the comb.

J. P. H. WILSON.

Temple, Tex., Dec. 29.

[If your combs are spaced too close, the bees would be likely to gnaw away the comb. Space  $1\frac{3}{8}$  inches from center to center—not closer than  $1\frac{1}{4}$  inch. Where robbing is allowed to get under a good headway, the combs of the robbed colony are liable to be torn into.]

## MY REPORT FOR 1890.

I sold 318 queens, and spent \$18.00 in advertising. My receipts were probably meager for the amount spent in advertising, but I have not a dissatisfied customer, nor a queen reported impurely mated. Many have wondered, and some have asked, "How are your books since you advertise to be paid for on arrival?" I am glad to say I have found bee-keepers, as a rule, "gilt edge," and the best class with whom I have ever dealt; and the result is so satisfactory I shall advertise that way again another year.

## THE HONEY CROP

the past season was short, and from 100 colonies I received 1200 lbs. (half comb, half extracted), which sold on an average at 15 cts. per lb. Late in the season, owing to frequent fall rains and mild weather, there was a profusion of bitter-weed from which the bees filled their hives for winter stores—something that has not occurred in several years. The honey is very unpalatable, but has a good body, and is about as dark as Spanish needle. The bees are wintering well, and on the 29th of December they were bringing pollen from elm. The discussion on closed-end frames has caused me to decide to use them with all new swarms another season.

W. H. LAWS.

Lavaca, Ark., Jan. 16.

## RIPENING OF HONEY NOT ALWAYS A PROOF AGAINST CANDYING.

In friend Beach's article, page 780, 1890, he says if the weather is warm and dry while honey is being gathered, and remains so until it is thoroughly ripened and sealed, in his opinion it will rarely ever candy. If friend B. had seen what I did last summer he would have talked different from that. The month of July, 1890, was very warm and dry here. Our bees at that time were working in the pine-forest and cotton-fields. The honey (or sugar, if you choose) would granulate just as fast as it was brought in. It was impossible to extract it, as it was just a thick mush. All the way it could be used was to cut it out in the comb, or use it in the building of new colonies. It is needless for me to say that this honey was as good and nice for the table as any honey ever raised. Friend B. also says we know when cotton honey is coming in, by the pollen on the bees' backs. If he will notice when bees are working on cotton he will see that very few bees go inside of the blossoms, or at least they do not in Mississippi. The honey is obtained from the outside at the base of the bloom.

J. R. CLEVELAND.

Decatur, Miss., Jan. 27.

## CLOSE SPACING AND FIXED FRAMES.

I am very sure that less than  $\frac{3}{8}$ , instead of more, between the bottom-board and the bottom of the frames, is very important. If more, the bees must go up some other way; and, besides, there is much valuable time lost by the bees by too much space at the end of the frames; and for me I want every frame full clear to the bottom, so as not to allow any loafers. I know what it is to move hives in and out with frames loose or fixed, to say nothing of the trouble of taking off cases from loose frames. I shall use none but fixed ones of some sort, in the future. It is a wonder there are any in use except fixed. It's too much on the guessing-at-it plan.

Hallowell, Me., Jan. 15. E. P. CHURCHILL.

## WIDTH AND THICKNESS OF TOP-BARS.

On page 888, 1890, Dr. C. C. Miller gives us a talk about the thickness of brood-frames and the building of burr-combs; and in Ernest's

remarks following, he asks for information of others as to whether brace-combs are sometimes built through the honey-board, as Dr. Miller explains. I have had some experience with thick frames; and if you can profit by an A B C scholar's experience, here goes. When I first turned my attention to bees, about three years ago, I had no foot-power saw to make frames with, so I had to make them by hand. I made them the same dimensions as the Langstroth, described in the A B C, with the exception of the top-bar. I made this  $\frac{1}{2} \times \frac{1}{2}$ , so as to have a shoulder at the end to nail the end-bars to. Now, with these frames I have little or no trouble from burr-combs or brace-combs either; and I am inclined to think that a wider frame would be better. In fact, I think if the top-bars were wide enough, after being spaced they would be queen-excluding; and then we could, I think, dispense with the honey-board entirely. I am going to experiment with this problem the coming season, and will report.

J. H. GOE.

Mossy Rock, Wash., Nov. 26.

## OBJECTIONS TO THE T SUPER; WIDE FRAMES PREFERRED.

As I never see any thing in GLEANINGS of the *American Bee Journal* about wide frames, I should like to say a few words in regard to their use. Supers seem to be all the go. I have been using both wide frames and T supers, and I am completely disgusted with the latter. Bees very often build comb between the sections and the top-bars of the brood-frames, and this has to be scraped off, and the sections are generally soiled or darkened on top by the bees passing over them. Again, you can not take 2, 3, or 4 sections from a T super without taking the whole case off. Now, with wide frames there can not be any comb built on the underside of the sections, nor are they soiled in the least. You can take off sections where wide frames are used, just as you want them; you can take out a frame, fill with sections, and take 1, 2, 3, or 4, and just put empty ones in their places. I have sections in wide frames that have been in them for two years, and I am taking them out now, and they look as bright as they did when I put them in. Who can say this of T supers?

W. S. DOUGLASS.

Lexington, Tex., Jan. 18.

[There is no need of having burr-combs or having the T super fastened to the brood-frames if you use a honey-board, or, better still, the right kind of brood-frames, with a bee-space of not more than  $\frac{1}{4}$  inch above. Your greatest objection to the T super can be obviated if our own testimony and that of hundreds of reliable witnesses can be relied upon. But there is one thing which you have mentioned, and which is very true. In a poor season, or for any other cause that sections remain upon the hive for any length of time, the sections will discolor; that is, they will have a soiled, travel-stained, yellow appearance. In wide frames, or even in the section-holders, if an enameled cloth be laid flat (no bee-space) upon the section tops, the outsides of the sections will be clean and white, no matter how long on the hive.]

## ONE WHO LIKES THE RUBBER GLOVES.

In answer to Miss Emma Wilson's inquiry in GLEANINGS for apron material, I would suggest oiled silk, if not too expensive. The rubber gloves are nice; and, every time they are taken off, they should be pulled off the hand so as to leave them wrong side out, so as to dry the moisture in them, or they will soon spoil, as they are air-tight.

Mrs. C. A. STEBBINS.

Churchland, Va., Feb. 5.

## OUR HOMES.

What shall it profit a man, if he shall gain the whole world, and lose his own soul?—MARK 8:36.

*Friend Root:*—You may think it strange of me to write you such a letter as I have sat down to write, and may be you will think I am interfering with what does not concern me; but believe me, I have given it no little thought, and am going to do just exactly as I would wish to be done by under like circumstances. I am a Christian, though I am far from being a perfect one. I know what the power of temptation is, and it helps me to have charity for others who make wrong steps. I think the more popular any Christian becomes, and the more good he wants to do in the world, the more untiringly Satan will work to trip him; and so the more watchful and prayerful he must be.

I will tell you what I refer to. I am a member of the Southern California Bee-keepers' Association, and at our meeting Jan. 8, at Los Angeles, bids were sent in by the various supply-dealers to furnish the association with needed supplies. You will remember you sent a bid, and then added a postscript, saying that, if there were lower bids, let you know, as you could furnish supplies as low as any one.

Now, can you see where that placed you? In the first place, it looked very underhanded and dishonest; then it looked very grasping, as though you would wish to sell all the supplies used in the United States, or perhaps in the world. A murmur passed through the assembly. Some of them, in speaking of it, said they were "glad to find you out." Others said they "almost knew your spouting on religion was merely for the dollars it would bring you." Now, I do not believe you thought twice before you wrote that postscript. I am very sorry, for I often think that we who are trying to further the cause of Christ are holding it back by inconsistent lives. See Romans 14:21. Yours sincerely,

Redlands, Cal., Feb. 16.

H. P. LUTHER.

May the Lord bless you for your kind letter, friend Luther. By no manner of means do I think you are interfering, dear brother; on the contrary, nothing does me more good than plain outspoken words—that is, where they are spoken or written with the spirit that I am sure actuates you in the above. I do believe you are doing exactly as you would be done by, as you express it. Your thought is a grand one, where you speak of having charity for others *because* you yourself know what it is to be tempted. And this is one of the good things about trials and temptations—it keeps us from being overbearing, and judging others harshly. "Forgive us our debts as we forgive our debtors." Your next thought, too, is an important one. It is indeed true, I believe, that Satan *persecutes* and follows more *untiringly* any child of God who promises to become *popular*. When Finney was doing his great work through Ohio and York State, he was once overheard praying by himself out in the woods; and the burden of his prayer was that God might help him to bear *prosperity* in his spiritual work. And I want to thank you again for telling me so plainly and kindly just where you think I am at fault. If you will go back to that letter, however, which was read at the meeting of the association, you will find the expressions you mention were not the words of A. I. Root himself. As all the correspondence, however, that goes out of our establishment is supposed to be authorized by myself, I accept the responsibility, and the rebuke that comes with it. Let me say, however, in extenuation, that there are circumstances connected with this matter which I think your association failed to take into account. In the first place, we were asked to make a bid as early as the *first of January*. In fact, the letter referred to is dated Jan. 1. Now, at this early season, in this locality, we can not tell very well what we *can* do. We do

not know what the winter will be in affording suitable weather to move logs. We do not know how many are going into the supply business before spring; neither can we tell definitely what the demand is going to be. Perhaps in our bid we should have suggested something like this, and added that we might be able to do better a little later on. I have looked up the letter you refer to, and the postscript, which reads as follows:

"If our quotations on sections and some other items are not as low as you have received from some other party, we should like another opportunity for a bid. We think, taking it all around, we can furnish you goods that will please you as well as, or better, than any other."

Now, if it were only one individual who objected to the above, I should be inclined to accuse him of a lack of charity. If, however, it was the voice of an association, perhaps we had better conclude they were right; for I have great faith in the old saying, that "the voice of the people is the voice of God." Permit me to say here, that the writer of the above is our business manager, and my son-in-law; and to Mr. Calvert is due, perhaps more than to any other one person, the fact that our business has, within a few years, extended and enlarged so that our goods now go to almost every habitable part of the earth. Mr. Calvert's special forte seems to be in compassing the whole earth; and he has a gift that I have never seen equalled for keeping in hand, and under his eye, business transactions not only of great magnitude, but scattered here and there until an ordinary mind would become utterly confused and demoralized. Please, dear friend, remember that Mr. Calvert, like you and myself, is a follower of Christ Jesus, and an enthusiastic supporter of missionary work throughout the world, and one who gives so liberally of his earnings to these causes that I often feel like rebuking him. Now, let us remember that we all have our special individualities. Mr. Calvert does not write nor speak in that peculiar way your old friend A. I. Root does; but I am sure he *feels* just as kindly to his fellow-men as I do. Perhaps I may say, without any thought of boasting, that God in his mercy and love has seen fit to give your old friend a *peculiar* gift in talking to people, and in getting acquainted, and especially in *making* friends; and it often happens that those who have done business with me, and corresponded with me for years, notice the difference when the magnitude of our business obliges me to delegate to others the task of dictating correspondence. Both Ernest and John say, and with justice in their favor too, that it is impossible, with the present amount of business, to explain at length in the way I have been in the habit of doing with my friends. No other business house does it. In fact, when *any* business begins to assume large proportions, people are obliged to take for granted many things or to "read between the lines" as it were. As an illustration: When goods decline in value, every good business house should, as a matter of course, make the price lower to customers, and I believe this is generally done. When the recipient finds that the goods do not cost what he expected to pay, he does not demand a letter of explanation. He takes it for granted that there has been a decline in price, but he does not find fault, even if no explanation is made.\* On the other hand,

\*A letter has just been placed before me, illustrating so well the above, and at the same time paying a just tribute to our friend Mr. Calvert, that I have thought best to give it here in a foot-note:

MR. ROOT:—Your letter of the 28th is received, in which you say you give me an extra credit of \$1.65, because the goods had become so much cheaper, for which please accept thanks.

suppose goods advance. In this case I *do* think that every dealer should make at least *some* sort of brief explanation, even if it be a class of goods that is going up and down in value almost constantly. But yet a good many do not do this, relying upon their notice that certain goods are liable to advance without notice. At the present time we are having considerable jangle because alsike is \$9.00 a bushel instead of the price printed in our circulars last fall. We write our customers, again and again, that we gave notice of the advance in our January GLEANINGS; but quite a number stubbornly insist that they got the price out of our catalogue—\$7.50, and some say they will not pay any more. You may suggest that we should have written to them of the advance before filling the order. But suppose the proper season for sowing the seed is at hand, and the man wants it right off. Then delays become expensive. Now, if it were possible for me to write a pleasant letter, explaining with every such order when goods advance, I could almost always prevent hard feelings. But, dear friends, it is absolutely beyond my strength or power.

Every few days I come to the verge of overwork, and sometimes this overwork is in consequence of trying to pacify some offended customer in a matter of less than a dollar—sometimes, in fact, only a few cents. He will have it that we are greedy and grasping, and that "A. I. Root's religion is only a shrewd scheme to get hold of the dollars," as you express it. I have made all this explanation to let you see how impossible it is for me to dictate all these letters in regard to business.

Now in regard to the postscript I have given above. I presume that, if I had written that clause, I should have made it something like this:

"My good friends, at this date, Jan. 1, it is hard for us to tell exactly what we can do. We do not dare, at present, to give the close figures we may be able to give a little later when we see how our supply of basswood turns out. If our good friends at the convention do not insist on having exact figures right off now, we should be glad to hear from you a little later; and if you do not think it out of the way, we should like to have you tell us what bids you get, before you close the bargain with any one."

Well, the above is *in substance* just what Mr. Calvert wrote you, only it is told in my usual familiar way, instead of in a brief, business-like way as he puts it.

But, dear friend, my spirit moves me. I must say I am completely surprised at your honesty—so much so that I said to my wife, "Well, this man is surely honest enough. Certainly not one in a hundred would give a man the benefit of a lower price AFTER the goods had been sent and the bill made out." Of course, in the seven years I have been dealing with you I have always found you to be square and honest, but I did not expect it to go as far as that.

Port Clinton, O., March 2.

JULIUS JOHANSEN.

Perhaps you may wish to know what has brought forth such extravagant expressions. Well, it was simply something that our friend Mr. Calvert (the very man who wrote the letter to the association) wrote just as he does almost every day. An estimate had been given for some goods, the price agreed upon, order made, and the goods shipped. But a decline in prices (a week later) made it possible to make friend Johansen's bill a little less; so Mr. Calvert, in a neighborly and Christian spirit, wrote as follows:

FRIEND J.:—As we are getting better prices on Planet Jr. implements, we credit you with an extra discount of 10 per cent on \$16.65, the amount charged you for goods which went forward from Philadelphia on the 21st of February. Amount of credit, \$1.66.

Medina, O., Feb. 28.

A. I. ROOT.

Now, this is the way we are *trying* to do business, dear friends—not because it will prove to be a big advertisement to us, but because we love Christ Jesus, and try to live in the spirit of our opening text.

Yes, I know that, as our business increases, these Home Papers are going to be criticised and assailed. I feel that it is all the more because there is springing up all over our land a disposition to feel hostile toward those who handle capital, and who have the attendant power and influence that almost always accompany capital. Here in our own town a bitter spirit often comes up against me because I do not employ certain people to the exclusion of others. Of course, these friends do not look from my standpoint, and they do not know the full circumstances of the case. I can illustrate this by a little circumstance that happened only yesterday. On account of a lack of seasoned basswood we were obliged to suspend, for the time being, several hands. One of these came to me and said something like this:

"Mr. Root, will you think it impertinent if I ask you why you stop some of your older hands, and keep others who are no better workmen, and who have come later? Have I done any thing to merit your disapproval, or is there any way in which I can better serve you than I have been doing?"

I assured him that he had not offended, and I had no complaint to make at all. I told him the individual we were talking of was a stone-mason by trade, who, during a great part of the summer, when we were working on our new building, refused to have wages advanced. As you well know, stone-masons command a higher price than people of many occupations who have worked all the year round. One day when I urged the matter, and told him he ought to accept more pay for the work he was doing, he replied something like this:

"Mr. Root, you put yourself out of the way to give me something to do at a season of the year, and at a time when I could find no work, and when I was needy. You have been giving me work every day in the year, whether it stormed or not; and now that you want something done right in *my* time, and I see a chance of doing you a favor, just as you did me, I am going to do it. You need not say any thing more about it. I shall not take any more pay. In fact, I rather enjoy showing you that I can remember a favor."

Now, friends, you see I had most excellent reasons for doing just as I did; and yet the outside world looking on, knew nothing of this; and even if I had the time, it was not my business to explain all my motives for action. In this conflict of capital and labor, I get glimpses of just this very state of affairs. My friends who are lawyers or bankers, or men who have money to let or factories to run, are criticised and called unjust. They are also accused of being open to bribes; and people say nothing can be done except by wire-pulling and "getting inside of the ring," etc. And yet, when the truth comes out they have reasons for their conduct much like the simple circumstance I have given above.

I am afraid, dear brother, that my California friends are disposed to be uncharitable when they say that Mr. Calvert's postscript "looked underhanded and dishonorable;" neither can I see that they were right in thinking it looked "grasping," and that we "wished to sell all the supplies used in the world." A little reflection, it seems to me, should show them that this is not true. Although we have been the pioneers, almost, in many things pertaining to bee culture, we have no patents on any thing. In fact, if any of you want to start an opposition business to our own, and should write and tell us so, you would get a prompt reply, to the effect that we would give you all the assistance in our power. You can come here to our establishment, and

take the dimensions of every machine we use. You can bring your "Kodak," and take views of the machinery and appliances that we have been long years in studying up. At the Detroit convention a young friend came to me in a sort of bashful way, and told me he had been making Dovetailed hives to some extent. I assured him I was glad to know it, and looked at the samples of his work. He finally told me that he felt a little ashamed of having copied us in the way he had done, without even asking for the privilege. He then asked me how much *money* he should pay us so that he could go home with a clear conscience, and make Dovetailed hives out of pine-trees that grew on his own farm, for he already had a sawmill. I indulged in a good hearty laugh, and told him I was glad to know they had a man in Michigan who was enterprising enough to make bee-hives out of his own trees. When an opportunity offered, I held a sample of his work up to the eyes of the convention, and told them they could save expensive freights by sending their orders to our friend in question. Now, do you think it was any task for me, or that I found any selfishness to overcome in so doing? Why, bless your heart, no. My temptations do not lie in this direction at all. I have done this thing so many times (I was going to say all my life, but I had better say, since I became a *Christian*) that I have not a particle of fear of the result. I have seen the little text, "Give, and it shall be given unto you," verified so many times right along in this line that I feel as sure I shall not lose by it as I do that the sun will rise to-morrow. The enjoyment of helping somebody who is really honest and hard-working is worth a great deal more to me than the dollars and cents. I have my temptations, like yourself, to struggle with, and scarcely an hour of my life passes without a regular tussle in overcoming some sort of evil. But it is *not* at all in the line of wanting all the business in supplies for every apiary in the world. It is rather, that I want to be *helpful* to my *fellow-men*, and, therefore, I wish to respond with alacrity, and show myself wide awake whenever somebody comes to me with his wants. Do you know how many people there are in this world who fail in business just because of the *half-hearted* way in which they wait on customers? A grocer sits on a chair out on the sidewalk, waiting for customers. By the way, I always feel suspicious of the proprietor of *any* store who thinks he has nothing to do but to wait for trade. The grocer, like the farmer, should always know a *dozen* things that he can do profitably, no matter what the circumstances are. Well, suppose you go to one of these chaps who is waiting for trade to "turn up." You ask him whether he has any eight-penny nails. I have seen dealers who would say, "No, sir, I haven't any," and go right on talking *politics* with his *neighbor*, without another word to his *customer*. What should he do? I will tell you what I would have him do. If he really is sitting on a chair on the sidewalk, he should spring to his feet with alacrity, and say, "My dear sir, I am sorry to say that I am just out of *eight-penny* nails; but I have some nice *sevens* and *tens*. Just look at them. Perhaps you can make them answer. If the *tens* are too long, you may drive them a little slanting; and if you drive them first one way and then another, they will hold a great deal stronger than *eights* driven straight in."

Now, I think this latter is the right way to treat a customer. Of course, you should not hold on so as to detain him. If he says he rather thinks he will go somewhere else to get the *eights*, don't hinder him another

minute. A man who wishes to sell goods should strive to be *accommodating* in the truest sense of the word. He should try to be *helpful* to his customer; and even though some people should say that he acts "grasping" and use such remarks, I do not believe he should alter his plan on that account. *Sometimes*, when I go somewhere to trade I find the clerks overdo the matter in *trying* to make sales. But this does not happen one time in a hundred, compared with the people who are so half-hearted and sleepy and dull in taking care of their business that they *can't* succeed. I have never found more than one or two clerks in my life who would wait on every customer as I would have them waited on. Our successful drummers, who command a salary of from two to three thousand dollars a year, give us a fair illustration of what is wanted. They will find out in a little while what a man wants, and they will make themselves really useful and helpful to him. They will give him hints, and tell him things of value in his business, worth many dollars to him; and they do it just as cheerfully and pleasantly, even if they do not succeed in making a trade at all. A man once came into our machine-shop. He looked over our work and our machinery, and finally showed one of the men how he could have the lathes arranged so as to keep two running instead of one, and finally demonstrated to us so clearly that we could save more than a dollar a day by having an extra lathe, that he made a sale of one worth \$150. He was the proprietor of a machine-shop in a neighboring city, and he was obliged to wait here for a couple of hours for the train. Now, he did a stroke of business for himself in these two hours. He also gave us some valuable suggestions in our business that have been worth considerable money to us ever since. You see, friends, there is an extreme both ways in waiting on customers and in looking up trade; and is it not clear, too, that a man may seem greedy where he is only wide-awake, and full of energy and zeal to do with his might what his hands find to do? But inasmuch as the Bible admonishes us to beware of even the *appearance* of evil, we thank our good friend Luther for his timely caution, and promise to be careful in the future about even *seeming* to "want to gain the whole world."

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### SPECIAL DEPARTMENT FOR A. I. ROOT, AND HIS FRIENDS WHO LOVE TO RAISE CROPS.

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#### FARMERS' INSTITUTES.

We had a farmers' institute in our town on the 4th and 5th inst. Among other things the silo question was discussed. One of Crawford County's progressive farmers stated that he could raise feed enough on one acre to keep a cow twelve months, in good condition. Teaching agriculture in the common schools was discussed at length. Secretary Woodward said, "Put yourself in as boss of your farm; value your services at one hundred dollars per month, and make the farm pay it." Your friend T. B. Terry was present, and delivered an excellent lecture on potato culture. All valued Mr. Terry's remarks highly. It made one feel as though he wanted to plant potatoes right away, after hearing him talk. The bee-industry was touched slightly, and some of our neighbors who have kept bees "nigh onto forty years," gave a few hints on the subject. By the way, friend Root, I think if we could have more such meetings as this it would be a source of health, wealth, and happiness.

VERNE FREE.  
Townville, Pa., Mar. 7.

TOBACCO AS THE BEST AND CHEAPEST REMEDY  
FOR BUGS AND INSECTS THAT VEX  
THE MARKET-GARDENER.

When visiting the greenhouses at the Experiment Farm in Columbus I asked friend Green how it was that they had no trouble with the green fly. He replied:

"Oh! we do have trouble—or, rather, we should have, if we did not keep them down with tobacco."

"But, friend G., will tobacco really do the business when they get well started, and get on the under side of lettuce-leaves, where the plants are thick and large?"

"Oh, yes! I think tobacco will manage the whole business, provided you use enough of it. Let me show you how we do it, and how quick it works."

He took a handful of tobacco dust, and found some radishes where the green fly had made something of a start. He sprinkled it on the leaves, and put on enough to mulch around the plants, and we kept on talking. In just a few minutes he told me to look. Sure enough, the green fly was over on its back in the dirt, and had "turned up its toes." I then began asking where he got it, and what it cost.

"Why, it does not cost any thing. It is the dust they sweep up from the floor at the tobacco-shops, and they give it to us for taking it out of their way."

Now, I had used this tobacco dust before; but mine cost me something like \$6.00 a barrel, and we could not afford to use it as liberally as friend G. had been doing. In their reports in regard to the striped bug on melons and cucumbers, I remember they gave tobacco dust as the cheapest and simplest remedy. Sprinkle it on so as to make a mulching perhaps a quarter of an inch deep, right over the hill, so the plants must come up through it, and they will not be touched. If a very heavy rain, however, should wash it off and take the strength from the tobacco, give the vines another sprinkling. Now, where you can get this dust cheap, it certainly is the cheapest, quickest, and easiest remedy to apply that has ever been invented.

SOME QUERIES ABOUT RAISING CELERY.

Will liquid manure do the celery good? What time of the day is best to put it on? Could I not dig a trench, say one foot deep and four feet wide, and lay rails along the side of the pit to raise it just above the tops of the celery, and throw some old boards across, and some straw and some earth on top of it, leaving both ends of the pit open so I could open or shut, according to the weather? Could I not bind a dozen roots in a bunch and ship it on a car, laying it one on top of another, without jamming the celery or hurting the sale of it?

Unionville, Ont., Feb. 15. JOHN J. GRILLS.

[Friend G., the cheapest way to apply liquid manure to celery or to almost any thing else, is to scatter the manure on the surface of the ground around and among the plants; and then when it rains, the water will wash the liquid manure down around the roots of the plants better than anybody can put it on; and it saves all fussing with a barrel of manure, sprinkling-pot, and water. Your plan for wintering celery will be all right if you have a roof overhead that does not let the rain get through, and plenty of straw around the sides to keep the frost out. Most markets demand that celery be nicely trimmed, washed, and tied in neat bunches, and put up in clean, tight packing-boxes. If it is exposed to the air it very soon wilts, and in that case you can hardly give it away. You had better visit some practical man, and see just how he does it.]

CLOTH FOR HOT-BEDS AND COLD-FRAMES.

Will you please tell me how to prepare cloth to make it water-proof for hot-beds?

Willow Springs, Mo. J. N. NEWCOMB.

[Friend N., my experience is that I would not prepare it at all. I would rather have plain, strong cotton cloth than any with any preparation on it. The preparation may be a little better for the time being; but instead of preserving the cloth it makes it rot. I noticed that our friend who writes the tomato book speaks of only plain cloth without any preparation. If any of our readers have had experience to the contrary, we should be glad to hear from them. The great difficulty we have in using cloth, say in February or March, is from wind, snow, and rain. It raises the mischief with it, where glass would be undisturbed.]

A HOE-HANDLE ATTACHMENT.

Friend Root:—Haven't you wished a great many times, when you were tired, and perhaps thirsty, that your hoe-handle were not so dry and slippery as to necessitate expectorating often on the hands? It has been the case with



BLOCK OF WOOD TO BE NAILED TO YOUR HOE-HANDLE.

me, as well as of thousands. I often think there is a remedy for such complaints. Several years ago a simple device came to my mind, and I have often thought I would send it to you, and so I send it by mail to-day. Simply nail one on the hoe-handle near the end, the other about 18 inches from that, with  $\frac{1}{8}$  wire nails. Get them even, and both on the under side. They are first rate on a steel rake, and on all kinds of pronged hoes, and you can use such tools with mittens or gloves on when too cold; and the hoes, etc., won't be the wrong side up. I know from experience that one will not get nearly as weary as when he must grasp with all his might, besides spitting his whole life out, unless he is one of the spitting kind. I know it is a little early to talk hoes, but everybody ought to be happy once; and for so simple a thing it will call out happy thoughts. I am not boasting, but all should be improving and pressing onward. There is no patent on this, and I haven't got rich out of it, in dollars; but my feelings have been elevated by it very much. Please put them on and try them at something. You may see some way to improve them. I simply cut out a square corner, and think they are the right size. In digging potatoes with a pronged hoe, I tell you they are grand.

I have a wheel-cleaner for wheelbarrows, and I can not get along without one on hand-cultivators. You know a barrow-wheel is always rolling up a lot of soil, especially on clay land, such as you and I have. I will send you a sample later, if you wish. By the way, friend R., a large wheel on a cultivator is bad for working close to raspberries and blackberries. I think a 12-inch, as a whole, is the best. I speak unselfishly.

E. P. CHURCHILL.

Hallowell, Me., Feb. 2.

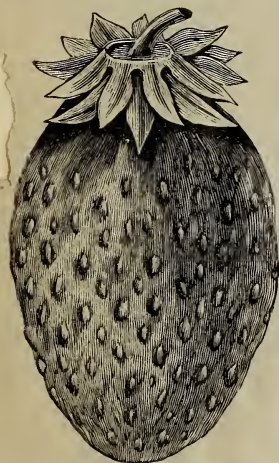
[Friend C., with our modern implements, both for horses and for hand use, the old-fashioned hoe is getting to be a good deal discarded, and I think it ought to be. On our place we use rake-hoes a good deal instead. But this implement will perhaps be a help with them as well.

If we could always work our Medina soil at just the right time after a rain, we could dispense with very much of the hard work connected with keeping crops clean. Yes, we have had much trouble in having the wheel to our wheelbarrow clog up after a rain, especially where the load comes close to the wheel, as it ought to do; and we shall be very much obliged to you for a sample of your wheel-cleaner. By the way, friend C., if you have the machinery for making these things (and who else can do it better and cheaper?) you should make them and offer them at a low price by mail. It will be a great deal cheaper for most of us to buy them of some one who makes a business of making them, rather than to try to whittle them out ourselves. If you put them at a low figure we will give you a free notice of them.]

#### THE BELMONT STRAWBERRY.

Two years ago a neighbor wanted to swap some choice strawberries, and among them were 50 Belmonts. I very soon noticed that this plant on our soil made better growth, and presented a handsomer and brighter foliage, than any other. I began searching the catalogues to see what they said about it; but I did not find very much in its praise, except from the introducer, several years ago. The experiment station

said it did not fruit evenly. Part of a row would give a good crop, and another scarcely any. I judged from this that probably it wanted a very rich soil. But the plant was such an exceedingly fine grower, and so handsome in appearance, that I planted out two long rows at a venture. Well, it has not borne as much fruit, perhaps, as the four I have selected; but the berries we did get were so very handsome, and of such excellent flavor, that I was very



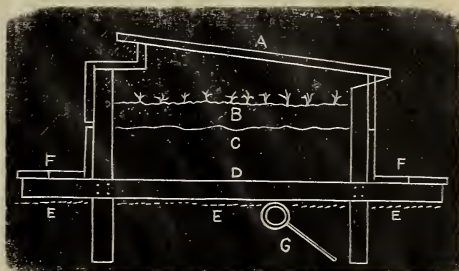
THE BELMONT.

much inclined to fall in love with the Belmont. Then its odd shape—the very sight of it is suggestive of “continued sweetness long drawn out,” or of a great drop of nectar ready to fall if you don’t catch it in your mouth. We are giving it another trial on a larger scale; and if they bear fruit even fairly, I think I shall put the Belmont among my chosen few. The beautiful cut was kindly loaned me by our good friend and veteran strawberry-grower, Mr. John Little, of Granton, Ontario.

#### COLD-FRAMES AND HOT-BEDS.

Perhaps you would think it a little funny if all my inventing and speculating on greenhouses that can be made “outdoors,” whenever desired, should finally come back to the old-fashioned cold-frame or hot-bed. A great many of the plans I figured out would work nicely, only they cost too much money; and then expensive machinery is always in the way when you do not need it. The present result of all my studying seems to be that the cheapest machinery in the present state of our knowledge, for moving sash, is two men—one at each

end of the sash. While I dictate this, my eye rests lovingly on a hot-bed 150 feet long, just across the street. We have some beautiful light strong sash, 3 feet 4 inches wide, 6 feet long, and made of 1½ lumber. The 8x12 glass, instead of being lapped, have their ends butted together, and all the joints made tight with the putty-bulb and sand. I am not yet satisfied with a place to put the sash when it is not wanted over the plants. What we are doing just now—in fact, what we have just done this morning, is to pile up the sash five high, right on the bed. To do this, the men simply have to take two sash and lay them on the top of a third one; then put two sash from the other side on the same pile. This is very little work, and four-fifths of the bed is uncovered. The next time the sash are handled we will shift them so as to put the pile in a new place every time. When we want the plants to catch an April shower, as soon as the bed is thoroughly wet we shift the piles of sash.



CROSS-SECTION VIEW OF OUR NEW 150-FOOT HOT-BED.

EXPLANATION.—A is the sash; B, soil; C, manure; D, chestnut strip; E, surface of the ground; F, plank to walk on; G, 4-inch sewer-pipe, which should be shown under middle of bed.

To enable the workmen to work easily during wet muddy weather we have two planks for a walk, on each side of the bed. The north side is 8 inches higher than the south; and on an average the sash stand two feet from the ground. The planks for the sides are nailed to short cedar posts five feet apart; and the inside, next to the dirt, is covered with tarred paper to keep out frost. On the north side the cedar posts are sawed off square, and a 2x6 Norway plank nailed flat on the top of these posts. This piece covers 6 inches of the ground inside of the cold-frame, so the plants on the north side will have 6 inches for the roots to go over and under the six-inch piece. When handling the sash it is very convenient to be able to get the ends of your fingers under the sash to lift it up. To do this, each end rests on a strip of pine one each square. With this arrangement for getting under the ends, and the planks to walk on, two smart boys will uncover a 150-foot bed very quickly. The two walls are prevented from spreading by strips of chestnut, nailed from one cedar post to the opposite one. These strips, to be out of the way for spading, are about 18 or more inches below the surface of the bed; and as there is no other connection between the two sides, we can, if we choose, put a horse and cultivator right into the bed, when the sash are out of the way, so as to fine it up thoroughly, much cheaper than it can be done by hand. About 18 inches of manure is put in the bed, and from four to six inches of dirt on top. I am now ready to tell you of another feature of my new hobby.

#### USING EXHAUST STEAM TO WARM UP HOT-BEDS, GREENHOUSES, ETC.

For some years I have been feeling uneasy whenever I see steam puffing out into the open

air from any kind of steam-mills, factories, etc. I have felt uneasy that this vast quantity of heat should not be utilized for warming buildings, or, in the spring and winter, for heating the ground and raising plants. Well, the engine that runs our printing-press and carries the dynamo for the electric lights is only about 150 feet from my new hot-bed. When the bed was made I laid a four-inch tile about a foot under ground, through its whole length, right in the center of the bed. Then with a two-inch iron pipe the exhaust steam from the aforesaid engine was sent into this four-inch drain-tile. I soon found the steam was heating the whole bed, with a large surplus, so I have given it another line of tile about 200 feet long. It has not yet gone to the end of this latter line; but during the last few weeks it has produced the most beautiful and luxuriant growth in rhubarb and strawberry-plants that I ever saw in my life.

Michel's Early, put out perhaps three weeks ago, have made such a growth that they are almost ready to send up blossoms for fruiting. This hot-bed was planned particularly with the end in view of getting our choice varieties of strawberries to put out runners as early as possible, in order that we may have young plants to send out, say in May or June. This will prevent the usual vacancy between plants grown last year and the present; that is, we want to be able to fill orders for plants during the very time when the strawberries are fruiting. For several years we have had orders for plants right during berry-picking. Of course, we can cut off the fruit-stalks and take up the plants; but this results in the loss of fruit, and the plant is not exactly what our customer ought to have, either. We shall see.



The way of the wicked is as darkness; they know not at what they stumble. But the path of the just is as the shining light, that shineth more and more unto the perfect day.—PROV. 4:19, 18.

The *American Bee-Keeper* believes that the winter case will be in general use in the near future.

#### STERLING STRAWBERRY-PLANTS WANTED.

If you have any for sale, say how many and how much per thousand.

#### THE APICULTURIST.

THERE is something in the *Apiculturist* that sparkles. It has lots of short, pithy items.

#### SHEET IRON VS. TIN.

Mr. ELWOOD says that sheet iron is cheaper and better than tin for hive-covers; and, besides, it holds the paint better.

#### THE TRADE-MARK.

So far, bee-keepers seem to be against the trade-mark—at least, its establishment in the Bee-keepers' Union, although friend Heddon argues for it.

#### OUR TYPE-WRITERS.

FIVE Remington type-writers are kept almost constantly going in our office, and still we are behind in our work. We are contemplating putting in a new Hammond.

#### A KIND NOTICE FROM THE A. B. K.

HERE is a neat compliment from the *American Bee-keeper*, for which we extend thanks:

Old reliable GLEANINGS keeps on in the even tenor of its way, growing better and better every month. Dr. Miller is the "bright particular star" in its firmament of contributors at present.

#### EXTRA MATTER.

IN the last issue we stated that we were going to give 8 extra pages; but we found we were obliged, at the last minute, to make it 12. But we do not suppose that any will complain. We give 16 pages extra this issue.

#### INDICATIONS

POINT to a remarkably big year for honey. Supply-dealers are springing up all over the country. A year ago the indications were that we should have a splendid season, but yet it was one of the poorest on record. We wonder whether it will be so again.

#### PROTECTION FOR SINGLE-WALLED HIVES.

THE above is the special topic for the *Review* for March 10. While there is not entire agreement, yet the general testimony seems to be in favor of a single-walled hive with some sort of removable winter-protecting case, instead of a hive having both walls permanently fixed.

#### TINKER'S PERFORATED ZINC.

DR. G. L. TINKER has just had built for him a new zinc-machine that turns out the zinc much more rapidly than his old one, and is fully equal to the old samples that he has been sending out. He has just sent us some of his new zinc. It is simply perfect. That makes Tinker hard to beat on nice work.

#### WHY THE DOVETAILED HIVE IS SUPERIOR TO ANY OTHER FOR LASTING PURPOSES.

SAID our painter, who had just finished up a lot of Dovetailed hives, "Those joints will never gap to the weather, like halving and mitering, and hence they will outlast any other joint ever brought out. Keep the weather out of a joint, and it will never rot." There is a good deal of pith and point in this.

#### LADIES' DEPARTMENT.

MISS EMMA WILSON's two articles have called forth so many more from the ladies, that we are going to renew the department in the next issue, as above. There seems to be a strong bond of sympathy among the sisters. May it continue! We shall be very glad to have the subject of bee-keeping for ladies brought up and discussed a little more.

#### DR. MASON AND HIS CANE.

WE learn from Mr. Detwiler that the "diamond in the rough," spoken of on page 171, last issue, is fast progressing to a nicely finished cane. He says that the stick is dressed and polished. The design will be in imitation of comb foundation, electrotyped in copper, and gold-plated. We hope Dr. Mason will bring the cane to every convention he attends.

#### FIXED FRAMES IN THE SOUTH.

IT would appear, from the article on page 224, that there are some localities where the closed-end or partly closed-end frame will not answer, on account of the large amount of propolis. We should like to know about how many of our friends in the South use them now, or have discarded them because of the propolis. We want the exact truth, let it come where it will.

## THE BENTON CAGE SUCCESSFUL AGAIN.

We are just informed of the successful mailing of a select tested queen in a Benton cage, consigned to W. W. Somerford, San Miguel de Jarico, Cuba. This makes the second time that the Benton cage has been successful in mailing queens to the West Indies.

## DOVETAILED JOINT IN HIVES, 30 YEARS OLD.

WHILE looking through the "Manual of Bee-keeping," by John Hunter, we ran across a hive with dovetailed corners. This, the author says, on page 88, was first described by Mr. Woodbury in the *Journal of Horticulture* in 1861. There has been some little discussion as to who first introduced the dovetailed joint on hives, that has since become so popular. This ought to put an end to the discussion.

## THAT SHINY PAPER OF GLEANINGS.

Two or three have complained that our journal paper is too glossy to be read with ease. This same trouble applies to the *Century*, *Cosmopolitan*, *Scribner's*, *Harper's*, and other first-class standard magazines. To be able to print our half-tone work, and to bring the engravings out with the best effect, we have to use this fine paper. It will give no reflection to the eyes if you hold it at the right angle to the lamp. In the day time it will give no trouble.

## HOW TO HANDLE FIXED FRAMES.

We expect to publish shortly some articles from Mr. Elwood and Mr. Hoffman, on how to manipulate fixed frames. These articles will be fully illustrated, and will explain many points which may not be clear. The great mass of bee-keepers do not yet understand *how* it is that fixed frames can be handled as rapidly as the loose frame. We have some beautiful photographs which illustrate each step of the *modus operandi*.

## BOOMING THE BEE-BUSINESS.

BEE-JOURNALS have been accused many times of publishing only the *bright* side of bee-keeping, such as, for instance, reporting big yields, and letting the smaller yields go unpublished. The trouble is not so much with the bee-journals as it is with the bee-keepers themselves, who will not send in reports of poor yields. If they have a big yield they like to hand it in, because it looks well. A poor report may mean a poor bee-keeper, in the eyes of the public, they think.

## THE CHIPS AND SHAVINGS DEPARTMENT OF THE APICULTURIST.

This is edited by E. L. Pratt, and the chips are crisp and full of hints and hits. Here is a couple of them:

Father Root is acting as "ballast" to GLEANINGS. He thinks Ernest too progressive.

If all the journals are going into the "cream" business, where are they going to get their milk to skim? Would a skim-milk bee-paper pay?

The first one is a sort of compliment to us both. Don't you see that it makes our journal broader?

## HASTY IN CONVENTION.

HASTY is a valuable man in convention. He is brimful of that same vein that appears in his printed articles. He seemed to thoroughly enjoy the last meeting at Toledo, of the Ohio State Bee-keepers' Association. Toward the close of the session, Dr. Mason said, bantering-ly: "There, now, Hasty, don't you think that conventions are a good thing?" Hasty seemed to hesitate for a moment, and finally said, with a sly twinkle in his eye, "I have heretofore

been opposed to conventions, but now I am half converted." There was a time when the senior editor of this journal was not a "convention man," but now he is altogether converted, and he goes every chance he gets.

## SANDPAPERING DOVETAILED HIVES.

As the new Dovetailed hive is now sold by nearly all dealers, and by the carload, all over the country, a hint on putting together may come in place. After driving the dovetails home, nailing and squaring the hive, you can very greatly improve the appearance of the corners by the use of sandpaper where the ends of the tenons, as it were, come even with the surface. When thus treated, and coated with paint, the dovetails disappear, and the hive looks as if it were made of a solid block of wood.

## SURPLUS COMMUNICATIONS.

PERHAPS some of our correspondents are wondering why their articles do not appear. The fact is, we have a great stack of good articles; and although we use only about half of those sent in, there are others that we fear will have to be left out, though just as good, and in some cases better, than some we print. After they have lain a couple of months, many of them are out of date or behind the times; and to publish them later when we have space would be too much on the Rip Van Winkle style. We have enlarged our space to 16 pages for the present, but this does not let us out yet.

## CIRCULAR SAWS; HOW TO FILE THEM AND KEEP THEM IN ORDER.

THE best treatise I have ever seen on this subject is a book by Mr. Henry Disston, entitled, "Handbook for Lumbermen." As the book is also an advertisement of their saws and tools, I suppose they give them away—at least they sent us a hundred, and all we had to pay was the express charges. They ought to have been sent us by freight; but as they charged us nothing for the books, of course we could not well complain. Now, we will send them to any of our friends who will send us enough to pay postage and express charges mentioned, which would be about 8 cts. In my opinion this book is the best authority on this whole matter of saw-filing of any thing the world contains.

## WASHINGTON ALMOST A MILLIONAIRE.

OUR friends of the *Rural New-Yorker* are responsible for the following:

After having been twice President, George Washington died, in 1799, worth \$930,000, the richest man in the United States. Could the richest man in the United States be elected President to-day? Is the change in public opinion with regard to the holders of great wealth due to a change in the character of the millions or of the millionaires?

Had not the father of our country been so situated that he could advance money to the feeble and struggling colonies at just the time he did, can anybody tell what would have been our condition to-day? History says that Washington accepted no pay for his Revolutionary services of eight years, but simply allowed Congress to refund the money he had advanced to pay a starving and almost rebellious army. Of this rich man, Byron says he was

"The first, the last, the best,  
The Cincinnatus of the West."

## JOHN H. LARRABEE AND THE APICULTURAL EXPERIMENT STATION.

SOME months ago Prof. Cook wrote to E. R. R., asking whom he thought would be a good man to take charge of the apicultural experiment station at Lansing. After thinking the

matter over for some time, we finally recommended Mr. Larrabee as above. We stated that, if he could be obtained, he would be just the man. We heard nothing more about it until a few weeks later, when Mr. Larrabee himself stepped into the office of the Home of the Honey-bees. We asked him whence he came and whither he was going; and on being informed that he was going to Lansing we knew the sequel, and were pleased to know that our recommendation was accepted. Mr. Larrabee has been a successful bee-keeper in Vermont. He is educated, young, and enthusiastic. He combines all the qualities of an experimenter. So far Prof. Cook is greatly pleased with him.

#### DEATH OF MRS. P. L. VIALLOIN.

OUR space is so crowded that we are unable to give obituary notices generally; but we have just learned that P. L. Viallon, one of the representative bee-keepers of the South, a supply-dealer, an old subscriber and correspondent of GLEANINGS, has lost his wife. He writes:

*Friend Root:*—On the 31 inst. I took my beloved wife to her last resting-place. She had an affection of the heart for several years, although in tolerable health; but about three months since, she took the prevailing influenza, the gripe, which brought on a complication, and involved the lungs, and on the 2d of March she breathed her last, in her 49th year. Out of eleven children she leaves three sons and three daughters, and your unfortunate friend, to mourn her loss. Only on the 7th of August last, we celebrated the 25th anniversary of our wedding, not suspecting the end so near for one of us.

Bayou Goula, La., March 5. P. L. VIALLOIN.

We extend to you our sincere sympathy. One of our old employes, Mr. J. C. Olin, who was also for a time in the employ of Mr. Viallon, says Mrs. V. was an earnest Christian and an estimable woman. It is pleasant, friend V., when such dear ones are taken away from earth, to feel that they have gone to a better land.

#### OUT-APIARIES: ADVANTAGES OF DIVIDING UP THE COLONIES INTO OUT-YARDS, INSTEAD OF CONCENTRATING THEM INTO TWO OR MORE LOCALITIES: A HINT FOR NEXT SEASON.

REPORTS at conventions, and testimonies through the bee-journals, have shown, over and over again, that, while one bee-yard will not give a pound of surplus, another, not more than three miles away, may yield a big crop. This is something that we can sometimes explain. In one section, the farmers have a big rage for peavine clover. Perhaps a few miles away some non-yielding-nectar crop has a similar rage. The result is, that the first locality will give a crop of honey while the second will not. It sometimes happens, too, that one yard is located near a swamp; and this source will usually give some honey, even during a dry season, while the other will give none at all. And, again, an apiary may be located on upland, among basswoods, and the latter will give a good deal more honey than the swamp yard. This shows the advantage in having out-yards. In some sections it may be advantageous to divide a yard having only 75 colonies. Mr. J. B. Hains, of Bedford, O., has something like 13 apiaries, and the number in each yard varies all the way from a dozen to fifty. His locality is such that no one yard can have profitably more than fifty colonies; and it pays him, therefore, to scatter his bees into small yards around the adjoining country. It is a significant fact, that occasional yards will not support much over a dozen colonies with profit. While there are those that will support 100,

they are rather rare east of the Mississippi. The thing for us is to determine just how many a locality is good for; and then, when the colonies increase beyond the average right number, put them in another location.

#### SILVER-PLATING OUTFITS, ETC.: LOOK OUT FOR THEM.

So many inquiries are coming in regard to outfits for silver-plating for a few dollars, that are advertised (I am sorry to say) in a good many good papers, I feel called upon to make a protest. Good, durable silver-plating can no more be done outside of a plating-factory than one can manufacture knives, forks, and spoons at a profit outside of a factory. The very plan of advertising should at once suggest to every thinking mind that it is a swindle, reading exactly as if the editor took pains to tell of or to encourage something commendable; whereas the whole thing is a *paid advertisement*. No girl, no widow-woman, nor anybody else, ever did any thing of the sort; and the periodical that lends its influence and good name toward fostering and encouraging any thing of the sort will surely repent it. The man who sells his good name and influence in community for a few cents or a few dollars, will, in a very short time, find he has neither good name nor influence.

Here is a couple of them, taken from a county paper. The heading, you notice, is pretty sure to attract everybody's attention by its peculiarity:

#### A GIRL WORTH HAVING.

After reading Mr. Gray's experience in the plating business, I sent \$3 to the *Lake Electric Co., Englewood, Ill.*, and cleared \$21 in a week. Isn't this pretty good for a girl? There is tableware and jewel to plate at every house; then why should any person be poor or out of employment with such an opportunity at hand? A SUBSCRIBER.

You will notice that the above is signed, "Subscriber," giving people to understand that subscriber to the above paper sends in this report, which is an absolute falsehood from beginning to end; and the editor who accepts such an advertisement and puts it in his reading-columns is a party to a fraud. In another place in the same paper is another, which reads as follows:

#### MONEY FOR EVERYBODY.

Mrs. Wells asks, "Is it a fact that a person can make \$30 to \$40 a week in the business?" Yes, I make from \$5 to \$7 a day, plating and selling plated ware. The Lake Electric Co., Englewood, Ill., will give you full instructions. In this business there is money for everybody. A READER.

Just for the fun of it we turned to Dun and Bradstreet, but there is no such concern at Englewood, Ill., at all. Very likely there is somebody there to take the money out of the post-office, and possibly they send some sort of apparatus. Perhaps some of our readers can tell us more about it.

#### THE WORLD'S COLUMBIAN FAIR.

THE following is an editorial which we clip from the *American Bee Journal*. As it contains just the information that many State beekeepers' associations want, we are glad to give it entire:

The Illinois State Bee-Keepers' Association decided to ask the Legislature to appropriate \$5000 for the collection and maintenance of a suitable exhibit of bees, honey, wax, and apianian appliances at the World's Columbian Fair. The committee to form the bill and present its claims are:

Thomas G. Newman, Chicago.  
Col. Charles F. Mills, Springfield.  
Hon. J. M. Hambaugh, Spring.  
Hon. John S. Lyman, Farmingdale.  
C. P. Dadant, Hamilton.